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## His Majesty King Edward VII.

BORN, NOV. 1841.

DIED, MAY 1910.

ASCENDED THE THRONE, JANUARY 27, 1901.

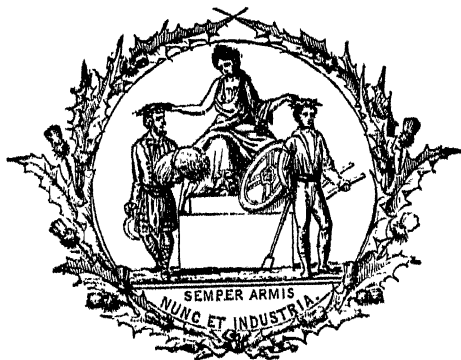
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TRANSACTIONS  
OF  
THE HIGHLAND AND AGRICULTURAL  
SOCIETY OF SCOTLAND

WITH

AN ABSTRACT OF THE PROCEEDINGS AT BOARD AND  
MEETINGS, AND THE PREMIUMS OFFERED BY  
THE SOCIETY IN 1911

PUBLISHED ANNUALLY



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# CONTENTS

	PAGE
1. KING EDWARD SEVENTH. By JAMES MACDONALD. ( <i>Illustrated</i> )	1
2. EXPERIMENTS IN CROSSING TURNIPS. By JOHN H. WILSON, D.Sc., F.R.S.E. ( <i>Illustrated</i> )	18
3. HEAVY ROOT FEEDING AND THE DUNGHEAP. By JAMES HENDRICK, B.Sc., F.I.C.	32
4. MODERN BEE-KEEPING. By D. M. MACDONALD, F.E.I.S.	39
5. WEEDS AND THEIR DESTRUCTION. By H. C. LONG, B.Sc. ( <i>Illustrated</i> )	45
6. THE CHEMISTRY OF THE PROTEINS. By T. B. WOOD, M.A.	84
7. VARIATION IN THE COMPOSITION OF COWS' MILK WITH ADVANCE OF LACTATION. By CHARLES CROWTHER, M.A., Ph.D. ( <i>Illustrated</i> )	93
8. GRASS AND CLOVER SEEDS AT COCKLE PARK. By Professor GILCHRIST	102
9. THE PROGRESS OF BACON-CURING. By LOUDON M. DOUGLAS, F.R.S.E.	112
10. THE PROS AND CONS OF AGRICULTURAL CO-OPERATION. By WILLIAM E. BEAR	123
11. DEVELOPMENT OF FORESTRY IN SCOTLAND. By Sir JOHN STIRLING MAXWELL, Bart.	132
12. COST OF WINTER FEEDING IN MILK PRODUCTION. By Principal DUNSTAN	141
13. ORIGIN OF THE CLYDESDALE AND OTHER HEAVY BREEDS OF HORSES. By J. COSSAR EWART, M.D., F.R.S. ( <i>Illustrated</i> )	151
14. INFLUENCE OF TEMPERATURE ON MILK YIELD. VENTILATION OF COW BYRES. By CHARLES DOUGLAS	170
15. IMPROVEMENT OF HILL PASTURE AS DETERMINED BY THE EFFECT ON STOCK. By JAMES HENDRICK, B.Sc., F.I.C.	190
16. ANALYSES FOR MEMBERS DURING 1910. By JAMES HENDRICK, B.Sc., F.I.C.	216

17. MILK RECORDS. By CHARLES DOUGLAS . . . . .	222
18. THE CEREAL AND OTHER CROPS OF SCOTLAND FOR 1910, AND THE WEATHER OF SCOTLAND IN 1910—	
The Crops . . . . .	233
The Weather of Scotland in 1910. By ANDREW WATT, M.A., F.R.S.E. . . . .	252
Rainfall Records for 1910 in inches . . . . .	263
19. AGRICULTURAL STATISTICS . . . . .	264
20. PRICES OF GRAIN IN EDINBURGH MARKET FOR 1910 . . . . .	277
21. PRICES OF SHEEP SINCE 1818 . . . . .	284
22. PRICES OF WOOL SINCE 1818 . . . . .	286
23. GENERAL SHOW AT DUMFRIES, 1910. ( <i>Illustrated</i> ) . . . . .	288
24. PREMIUMS AWARDED BY THE SOCIETY IN 1910 . . . . .	309
25. ACCOUNTS OF THE SOCIETY FOR 1910 . . . . .	345
26. PROCEEDINGS AT THE SOCIETY'S BOARD AND GENERAL MEETINGS . . . . .	353

## APPENDIX A.

PREMIUMS OFFERED BY THE SOCIETY IN 1911 . . . . .	1
---	---

## APPENDIX B.

LIST OF MEMBERS OF THE SOCIETY . . . . .	1
--	---

INDEX . . . . .	<i>At end</i>
-----------------	---------------

*\* \* It is to be distinctly understood that the Society is not responsible for the views, statements, or opinions of any of the Writers whose Papers are published in the 'Transactions.'*

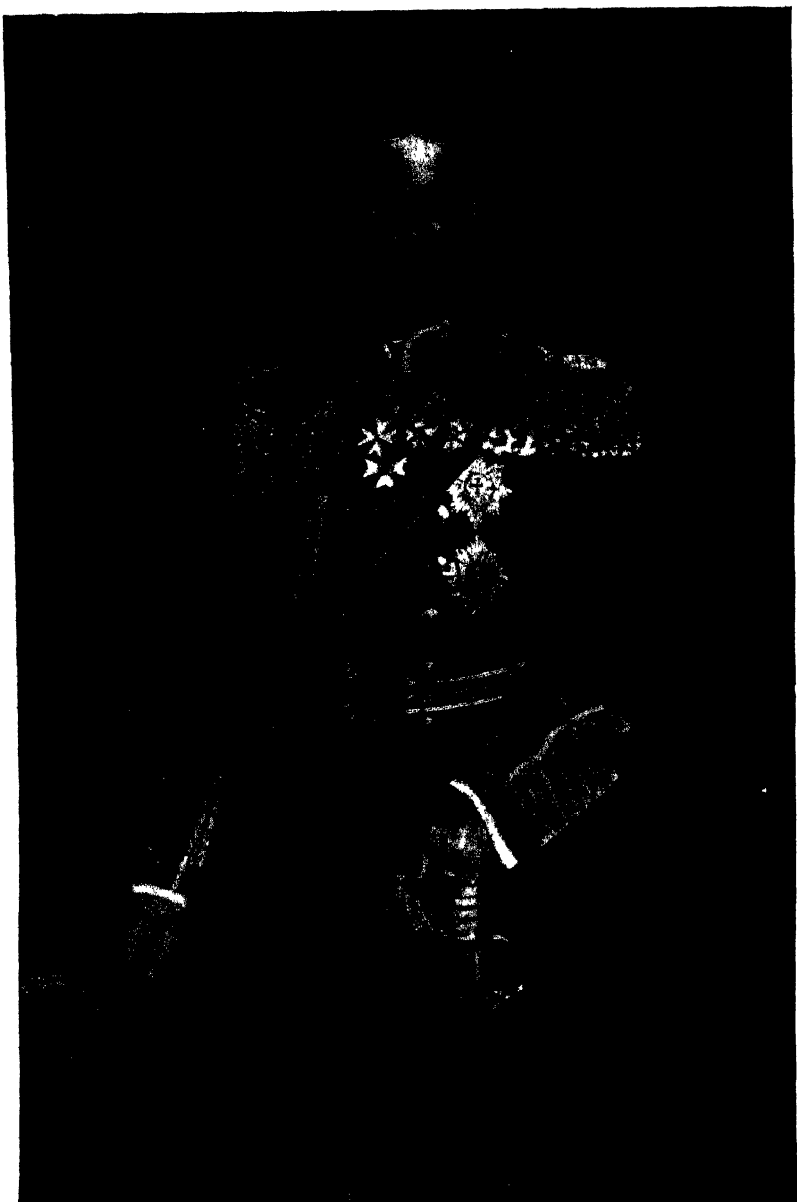
# ILLUSTRATIONS

FIG.	PAGE	FIG.	PAGE
1. Purple-top Swede crossed with Yellow Turnip: first generation . . . . .	19	12. Silver-weed ( <i>Potentilla Anserina</i> L.) . . . . .	61
2. Capsules of hybrid plant (Swede × Turnip) . . . . .	21	13. Coltsfoot ( <i>Tussilago Farfara</i> L.), as seen in March, and showing the extensively creeping rootstock . . . . .	63
3. E, Swede; F, Turnip; A, B, C, D, G, H, J, K, Hybrids of the second generation . . . . .	24	14. Knotweed ( <i>Polygonum Aviculare</i> L.), and Black Bindweed ( <i>P. Convolvulus</i> L.) Both × $\frac{1}{2}$ . . . . .	65
4. Swede crossed with Turnip: third generation . . . . .	25	15. Clover Dodder ( <i>Cuscuta Trifolii</i> Bab.) on Red Clover ( <i>Trifolium pratense</i> ), × $\frac{1}{2}$ , with flower enlarged . . . . .	66
5. a, c, Examples of Swede crossed with Turnip; third generation: b, Example of hybrid Turnip crossed with Curled Kale; companion plant of a, c . . . . .	27	16. Broom-rape ( <i>Orobanche minor</i> Nutt.), nat. size . . . . .	67
6. a, b, Examples of Swede crossed with Turnip; c, d, Examples of hybrid Turnip crossed with Curled Kale . . . . .	28	17. Persicaria or Redshank ( <i>Polygonum Persicaria</i> L.) . . . . .	68
7. Derivatives of hybrid Turnip crossed with Curled Kale (c in Fig. 6) . . . . .	29	18. Seedlings of Dock ( <i>Rumex</i> sp.) . . . . .	69
8. Examples of Yellow Turnip crossed with Swede (third generation), diseased . . . . .	31	19. Goosefoot, Fat Hen ( <i>Chenopodium album</i> L.), showing young plant and flowering-stem. Both × $\frac{1}{2}$ . . . . .	70
9. Seedlings of Creeping Buttercup ( <i>Ranunculus repens</i> L.) . . . . .	58	20. Seedlings of Goosefoot ( <i>Chenopodium album</i> L.) . . . . .	71
10. Poppy-killer, used for light surface cultivation . . . . .	58	21. Horse-tail ( <i>Equisetum arvense</i> L.), showing barren stems and creeping rootstock . . . . .	73
11. Charlock ( <i>Sinapis arvensis</i> L.), × $\frac{1}{2}$ . . . . .	59	22. Meadow Saffron ( <i>Colchicum autumnale</i> L.) . . . . .	75
		23. Dyer's Green-weed ( <i>Genista tinctoria</i> L.), nat. size . . . . .	76

FIG.	PAGE	FIG.	PAGE
24. Knapweed, Hardheads ( <i>Centaurea nigra</i> L.) . . .	78	pony of the "plateau" type . . .	163
25. Yellow Rattle ( <i>Rhinanthus Crista-galli</i> L.), nat. size . .	79	44. Head of a cross-bred filly with a prominence or "bump" between the orbits . . .	164
26. Self-heal ( <i>Prunella vulgaris</i> L.), $\times \frac{3}{4}$ . . .	80	45. Head of a three-year-old Prejvalsky stallion . . .	164
27. Marsh Bent-grass ( <i>Agrostis alba</i> L.), $\times \frac{1}{2}$ . . .	81	46. Shorthorn Bull, "Alnwick Favourite" (90,653) . . .	289
28. Yorkshire Fog ( <i>Holcus lanatus</i> L.) . . .	82	47. Aberdeen-Angus Bull, "Metaphor" (27,161) . . .	289
29. Diagram of Milk Yield . . .	97	48. Galloway Heifer, "Brownie 4th" (21,436) . . .	290
30. An Ardene stallion . . .	156	49. Highland Heifer, "Finnery Queen" . . .	290
31. A Prejvalsky mare imported from Mongolia . . .	156	50. Ayrshire Cow, "Carston Lady Mary Stuart" (19,193) . .	291
32. A Battak pony imported from Sumatra . . .	157	51. Clydesdale Colt, "Baron Ashvale" (14,579) . . .	291
33. Side view of a skull of a "forest" horse . . .	158	52. Draught Gelding, "Avoca" . .	292
34. Side view of a skull of the "Siwalik" type . . .	158	53. Clydesdale Mare, "Boquhan Lady Peggy" . . .	292
35. Side view of the skull of a four-year-old 12-hands Prejvalsky stallion . . .	159	54. Hunter Gelding, "Suspense" . .	293
36. Side view of the skull of a Shire stallion ("Starlight") in the British Museum . . .	159	55. Hackney Stallion, "Adbolton St Paul" (10,052) . . .	293
37. Front view of the skull of a "forest" horse . . .	160	56. Pony Stallion, "Johnnie Cope" (10,278) . . .	294
38. Front view of a skull of the "Siwalik" type . . .	160	57. Highland Pony Mare, "Lady Jean" (1915) . . .	294
39. Front view of the skull of the four-year-old Prejvalsky stallion represented in Figs. 35 and 45 . . .	161	58. Shetland Pony Stallion, "Silverton of Transy" . . .	295
40. Fore hoof of a "forest" horse . .	162	59. Hackney Mare, "Broxtou Lett" (16,494) . . .	296
41. Fore hoof of a wild horse from Mongolia . . .	162	60. Blackface Shearling Tup . . .	
42. The front cannon bone (metacarpal 3) of a 12-3-hands pony of the "forest" type . . .	163	61. Cheviot Shearling Ewe . . .	
43. The front cannon bone of a 12-2-hands slender-limbed		62. Border Leicester Shearling Ewe . .	298
		63. Half-bred Tup . . .	298
		64. Shropshire Tup . . .	299
		65. Oxford Down Shearling Tup . . .	299
		66. Suffolk Shearling Ewe . . .	300
		67. Large White Sow, "Lady Amy" (25,478) . . .	300







His Majesty King George V.

*Photo by Downey, London.]*

TRANSACTIONS  
OF  
THE HIGHLAND AND AGRICULTURAL  
SOCIETY OF SCOTLAND

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King Edward Seventh.

*Born, Nov. 1841; Died, May 1910.  
Ascended the Throne, January 27, 1901.*

WHEN the illustrious Queen Victoria passed away in the opening month of the year 1901, it was said, and with perfect truth, that never before was the demise of man or woman mourned with sincerity over such a wide area of the great universe or by such vast masses of people as was the closing of the life of that beloved Queen. Nine short years later the funeral of Queen Victoria's first-born son evoked what has with equal truth been spoken of as the most sublime commemoration which has ever attended the obsequies of a British monarch. Certain it is that civilised history records no parallel to the universality and volume of sympathy and lamentation called forth by the death and burial of King Edward the Peacemaker.

That the close of the beneficent reign of Queen Victoria occasioned world-wide mourning no one wondered, for it was a reign which had endured for the long period of sixty-three years, and was of unsurpassed enlightenment throughout. King

Edward VII. ruled for the brief period of nine years and three months. How comes it that a reign so brief has impressed itself so remarkably upon the nations of the universe? The explanation is not far to seek. It is patent in the character of the man who sat upon the Throne.

Of the unique combination of gifts and graces which led to the development of that wonderful character there is, happily, no lack of knowledge. For have not the greatest statesmen, orators, and writers of the age united in extolling the rare attributes of the departed monarch? Their testimony to King Edward's personal worth, as well as to his unparalleled services not only to the vast Empire over which he reigned, but also to humanity in a still wider sense, has been characterised by a fulness, sincerity, unanimity, and warmth of appreciation leaving nothing to be desired.

Singularly happy have the people of Scotland been in the choice of those who have spoken for them in acknowledging the goodness and greatness of their departed sovereign. It is revealing no secret to say that in a very special degree the Earl of Rosebery enjoyed the friendship and confidence of King Edward, and thus, from fulness of personal knowledge, he has been able to speak of the life and work of his Majesty in terms peculiarly acceptable to his lordship's fellow-countrymen. With his lordship's permission, graciously given, we append here the following words spoken by Lord Rosebery at a county meeting at Linlithgow on 26th May: "To-day we have to lament the departure of a Sovereign whom we all of us respected, and all of us with a strange sense of personal devotion loved. We in Scotland are a loyal people. Whatever our politics may be, we all cling to our King, and have clung to him as long as the history of Scotland is known to have existed. And so when, in addition to the prerogative of Kingship, we have to lament one who had endeared himself by every personal and kingly quality to the people whom he governed, it is a dark day for us.

"Our King of Scots has gone. He was a true King of Scots. It was not that he was able to live, owing to the circumstances of his life, so much in Scotland as did his lamented mother. Our late King, for reasons of health, had to undergo a long Con-

tinental cure which greatly abridged the very time that he would have liked to have spent in Scotland, but when he had the opportunity when that was over there was no part of his realms where he was so happy as in Scotland, in Strathspey and in the valley of the Dee, where one of his homes was fixed; and I think I know that there was no part of the United Kingdom to which he clung with such fondness, from early association, as to the valley of the Dee, in which his Castle of Balmoral was fixed. His heart was always in Scotland, but not to the exclusion of the Empire over which he ruled, or to the exclusion of any part of it. He had, as it seems to me, the infinite and ineffable art of inspiring all the Empire—that world-wide Empire which he ruled—with the same spirit of cordiality and goodwill which animated every action of his life. It was said of the great Chatham that he had the power of breathing his spirit of patriotism and energy into the heart of every soldier that fought for Great Britain. That was the art of war. But our late King had the almost greater art of breathing into every part of his Empire, and into every subject of his Empire, that spirit of peace and goodwill which animated himself.

“I think we may say with truth—those of us who did know him, and those of us who did not—that he gave all of us the impression of his own spirit and his own character, his wish to bind the people in friendship together, his anxiety to bind people outside the Empire to love the Empire, and within the Empire to love it still better. The British Empire is united in all its world-wide parts by the one bond of the Crown. Take away the Crown, and the Empire of itself falls to pieces; it has lost its common bond of union. But when the wearer of that Crown, as in the case of Queen Victoria, and as in the case of King Edward, has personal characteristics of a high order, which are personal to themselves and attractive in themselves, we have in them an Imperial blessing which we scarcely appreciate when we possess it sufficiently, and which we cannot appreciate sufficiently when it has passed from us. And to-day we meet not to praise the living, but to consecrate the memory of the dead, and to resolve that, so far as in us lies, the example of our dead King shall not be lost upon us, but that we will do, each in his capacity, however humble and private it may be,

such as in us lies to imitate his example, and to give to our country the same whole-souled devotion that he himself in a more exalted position gave."

On another occasion, at a special court of the Governors of the Royal Scottish Hospital, held in London, Lord Rosebery, in moving the adoption of an address of condolence with the Royal Family, made touching reference to the great part which the unique personality of King Edward had played in achieving the marvellous success that distinguished his brief reign. "It was not merely the Princes and Sovereigns of the world," said Lord Rosebery, "whom our late King sought to win over to our country. It was the people as well. No one can have seen him in any foreign country without seeing how profoundly attracted to his personality were the communities among whom he was living. He has left on all nations, as I firmly believe, the impress of his marked and peaceful personality, which exists in every intelligent human being throughout the civilised world, and which has left the seal, the great seal, on his reign—the seal of peace throughout the world.

"It is a mistake to believe that our late King set himself as a diplomatist and a statesman to do work which was not appropriate for a constitutional King, but which is the natural work of Ministers and Diplomats. He was not intent on framing alliances or bringing about understandings hostile to other countries. What I believe he did hope to do was this—by his own winning tact, by his exquisite kindness of nature, by the transparent goodness of his character, to unite all peoples in bonds of friendship, so far as may be, and so to bring about the peace which he had nearest his heart. I say that he won the hearts of the people throughout the world. He had no need to win the heart of his own people. He had won it before he came to the Throne. I suppose no king has ever reigned of whom we have any record who has attained the marked and real popularity—popularity in the truest sense of the word—which was attained by King Edward. We loved and venerated his mother, but his mother, living a most secluded life, had not the same touch of personal popularity which in every member and in every part of her kingdom was attained by the late King. And how was that? Was it not because he was so

essentially human? When it behoved him to be a King he was a King, but all the time he was one with a man's heart, a man's nature, and more than a man's compassion for those who were less well placed than himself. He loved peace, and he loved the poor. It is not too much to say of our late King—and I say it in my heart and conscience—that in view of the character and weight which he had established in the councils of the world, in view of the efforts he was constantly making for the promotion of peace, in view of the sympathy by which he was enabled to knit together nations other than his own, he was at the time of his death one of the greatest agencies for good existing in the world."

Speaking on another occasion of the peculiarly winning personality of King Edward, Lord Rosebery said: "I think if the French had had him as their King they would have named him *Le Roi Charmeur*—the King who charmed everybody. I am not sure that they may not have named him so already. I daresay there are few who themselves have seen the King who have not seen the smile and aspect of extraordinary benignity and geniality with which he made everybody feel that he was in some sense their personal friend. I myself have never admired him so much as at some great collection of men, many of whom he may have known little or not at all, after some great banquet which he may have given in his own Palace, when afterwards he has gone round and spoken to every guest and left every face brighter and happier than he had found it. That is an art which none can acquire who has not a noble nature on which it can be grafted."

The tributes paid to the late King in Parliament were tasteful, high-toned, and full-hearted. In his eloquent and touching address in moving the adoption of messages of condolence with King George V. and Queen Alexandra in the House of Commons, Mr Asquith, the Prime Minister, said: "King Edward was a man of many and varied interests, a sportsman in the best sense, an ardent and discriminating patron of the arts, as well equipped as any man of his time in the give-and-take of social intercourse, wholly free from the prejudice and narrowing rules of caste, at home in all companies, an enfranchised citizen of the world. Endowed as he was by

nature, to such a man, placed where he was by fortune and by circumstances, there was open, if he had chosen to enter it, an unlimited field for self-indulgence. But as every one will acknowledge who has been brought into daily contact with him in the sphere of affairs, his duty to the State always came first. In this great business community there was no better man of business, no one by whom the humdrum obligations of punctuality, method, preciseness, of economy of time and speech, were more keenly recognised, or more severely practised. I speak with the privilege of close experience when I say that wherever he was, whatever may have been his apparent preoccupations, in the transaction of the business of the State there was never any arrears, there was never trace of confusion, there was never any moment of avoidable delay. Next to this, I should put a singular, perhaps an unrivalled, tact in the management of men, and judgment, an intuitive shrewdness as to the best outlet for the perplexed and even baffling situation. He had in its highest and best development the genius of common-sense. These rare gifts of practical efficiency were, during the whole of his Kingship, yoked to the service of a great ideal. He was animated every day in his Sovereignty by the thought that he was at once the head and the chief servant of that vast and complex organism which we call the British Empire. He recognised in the fullest degree both the powers and the limitations of a constitutional Monarch. He loved his people at home and over the seas. Their interests were his interests ; their fame was his fame. He had no self apart from them. I will not touch for more than a moment on the more delicate and sacred ground of his personal charm, the warmth and wealth of his humanity, his unfailing considerateness to all who in any capacity were permitted to work with him. I can only say in this connection, no man in our time has been more justly beloved by his family and his friends, and no ruler in our or in any time has been more sincerely true, more unswervingly loyal, more uniformly kind, to his advisers."

From Mr Arthur James Balfour, as Leader of the Opposition, there came, in seconding the adoption of the votes of condolence, a singularly able and acceptable appreciation of the character of his Majesty. He said : "When I ask myself how the great community over which King Edward ruled could feel as those

felt who were brought into his immediate contact, then this, I say, is due, and can only be due, to some incommunicable and unalterable power of genius which enabled the King by the perfect simplicity of his personality to make all men love him and understand him. Genius keeps its own counsel, and no mere attempt to analyse character, no weighing of merits, no attempt to catalogue great gifts, really touches the root of that great secret which made King Edward one of the most beloved Monarchs that have ever ruled over this Empire.

"There has been, I think, strange misunderstandings with regard to the relation of the great King who has just departed—that he took upon himself duties commonly left to his servants, and that when the secrets of diplomacy are revealed to the historian it will be found that he took a part not known, but half suspected, in the transactions of his reign. That is to belittle the King. That is not to pay him the tribute which in this connection he so greatly and so justly deserves. We must not think of him as a dexterous diplomatist. He was a great Monarch, and it was because he was able naturally, simply through the incommunicable gift of personality, to make all feel—the great body of all men—the friendly policy of his country, that he was able to do a work in the bringing together of nations which has fallen to the lot of few men, be they kings or be they subjects, to accomplish. He did what no Minister, no Cabinet, no Ambassadors, neither treaties nor protocols nor understandings, no debates, no banquets, no speeches, were able to perform. He by his personality, and by his personality alone, brought home to the minds of millions on the Continent, as nothing that we could have done could have brought it home to them—namely, the friendly feelings of the country over which he ruled."

Noteworthy, indeed, was the finely-spirited tribute which, on behalf of the working classes of the country, was paid to King Edward by Mr Edwards, Labour Member for Hanley, in supporting the votes of condolence in the House of Commons. He said: "I do not know that it is necessary for any one to rise from these benches to assure this House and the country of the earnest and sincere sympathy of the great mass of the working classes of this country in the loss which the nation has sus-



tained. I do so from a very intimate knowledge of a large section of the industrial classes, and assure this House that no loss of a Monarch, whether King or Queen, could so much affect the lives of the great mass of the people as the loss we have sustained during the last few days. The King by his noble life, by his heroic service, has brought the great mass of working-men to realise that, after all, those in high places have used their enormous power to make their lot happier and brighter. Of no one may it be so truly said as of the late King that he worked and toiled for the good of the people, and while his immediate associations were with those whose lot was better in this world, the great mass of the people at the base of society found that in him they had a warm and sincere friend. I am satisfied that throughout the length and breadth of this land to-day there will be one feeling, and one feeling only, and that is that they have lost, all of them, one of their warmest friends, one of their best friends, and their prayers and sympathies will go out to those who are left to mourn, that they may be comforted and sustained in their great trial. I feel that the lot of the great mass of the country during the reigns of the last two Monarchs has considerably improved, and when I realise the enormous effort which the late King made to make those in this island and in the whole Empire happier and better, I can say that the greatest eulogium that will be paid by any one will be that which comes from the lowest stratum of society, the enormous mass of men, women, and children who had learned to love and respect him. Nowhere will the sorrow be truer or more sincere or deeper than among the humblest of the poor. From thousands of cottage homes will go out with rare sincerity the honest prayers of honest men and women that the Queen Mother may be sustained in her great loss."

King Edward was a many-sided man. He was unvaryingly frank and genial in his intercourse with his fellow-men, always at his ease himself, and never failing to promote a similar feeling amongst those around him, however humble their social position might be. His habits of life were practical and business-like to an uncommon degree. Attention to his duty for the moment was ever his chiefest consideration, be that duty an important service to the State or a domestic engage-

ment of trifling concern. His common-sense, soundness of judgment, and tact were outstanding features, and they seemed never once to have failed him. His sympathies were as broad and kindly as the sunlight. His personal tastes were varied, yet eminently simple. He loved outdoor life in all its best forms; was devoted to field sports—horse-racing and shooting in particular. Agriculture claimed and received a large share of his attention. In the management of his landed estates he pursued a policy that was at once practical, sagacious, and public-spirited. He had a special fondness for estate improvement, notably for planting and for landscape-gardening. To practical farming he had a warm side, and it is well known that he took a keen and intelligent interest in the breeding of live-stock. The Royal Farms at Windsor, Sandringham, and Balmoral, are models of what royal farms should be; and the fame of the different studs, herds, and flocks kept there is world-wide. It was a matter of the liveliest gratification to British farmers and stock-breeders that in the reign of King Edward they had upon the throne a sympathetic and successful brother agriculturist.

Not only during his reign but throughout his entire manhood, the late King was ever eager and ready to do good service to the cause of agriculture. The leading agricultural societies of the United Kingdom had in him a valued friend, who never wearied in doing what lay in his power to further their success and usefulness. Most willingly did His Royal Highness give a share of his time and influence to our Scottish National Agricultural Society. Still fresh in the minds of many Scottish agriculturists is the visit of His Royal Highness as Prince of Wales to the Highland Show at Edinburgh in 1899. Still felt in the Society are the new life and fresh vigour imparted to it by that royal visit. The frank, homely, geniality of the Prince charmed everybody. Not less gratifying and noteworthy were the hearty interest and practical knowledge evinced by His Royal Highness during his painstaking inspection of the leading features of the Show. The Show ranks as the most successful in the history of the Society, and it was the largest with the exception of the Centenary Show in 1884. The number of visitors to the Show during

the four days exceeded 100,000, and a profit of over £3900 was realised.

The following sentences from the report of the Show in the Society's 'Transactions' for 1900 (5th Ser., vol. xii.) will be read here with interest:—

“Much of the Show's phenomenal success was, of course, due to the visit of his Royal Highness the Prince of Wales. It was the first official visit of His Royal Highness to the Scottish National Show, and certainly no other event in the long history of the Society has aroused such enthusiasm and widespread interest amongst the people of Scotland as were evinced on this occasion. His Royal Highness became President of the Society for the year, and from the beginning to the end of his year of office he spared no effort to promote the success of the Show and the wellbeing of the Society. During his visit to the Show, the Prince of Wales was the guest of the Duke and Duchess of Buccleuch at Dalkeith Palace. His Royal Highness arrived at Dalkeith Palace on the evening of Tuesday, the first day of the Show, visited the Show on the Wednesday and Thursday, and returned to London on Thursday night. The freedom of the city of Edinburgh was conferred upon the Prince of Wales in the M'Ewan Hall at midday on the Thursday, and there, as in the Showyard and on the route to and from the city, His Royal Highness was welcomed with boundless enthusiasm and cordiality.

“A peculiarly interesting function in connection with the visit of the Prince of Wales took place in the large parade ring immediately on the arrival of the royal party on Wednesday. As a memento of the Presidency and visit of His Royal Highness, the Society offered a Champion Gold Medal for the best animal or pen in each section of cattle, horses, sheep, and swine. The medal bore the bust of the Prince of Wales on the one side and the arms of the Society on the other; and, by the permission of His Royal Highness, it was arranged that it would be known as the Prince of Wales' Gold Medal. The function referred to was the presentation of these medals by His Royal Highness to the various winners. The presentation took place in front of the Grand Stand, and was watched with the keenest interest by gay crowds of visitors who thronged the

stands and enclosures. His Royal Highness shook hands warmly with each of the winners, and complimented them on their victory. At the close of the function the Prince of Wales made a detailed inspection of the champion animals, which were drawn up in line in the parade ring."

In this connection an incident comes to the writer's mind which admirably illustrates outstanding features in the singularly attractive personal attributes of King Edward. Amongst those to whom His Royal Highness presented gold medals in the parade ring was Mr Gordon, of Newton, the popular Convener of the county of Aberdeen. Mr Gordon's medal winner was his handsome Shorthorn bull "Corner Stone," which the Prince of Wales inspected closely, and obviously thought highly of. That presentation took place in the first week of July. Five months later his Royal Highness observed Mr Gordon in the president's luncheon-room at the Smithfield Fat Show in London, and making his way to him greeted him thus—"How do you do, Mr Gordon—and how is the bull?"

As President of the Society His Royal Highness occupied the chair at the general meeting of members held in the Showyard, and conducted the business with characteristic tact and ability. The meeting was the largest and most widely representative ever seen in connection with the Shows of the Society, and a magnificent reception was accorded to His Royal Highness. Sir John Gilmour, Bart. of Montrave, chairman of the Society's Board of Directors, moved a hearty vote of thanks to the Prince of Wales for his visit to the Show and for presiding at the meeting. In doing so he said he was sure he need not remind the meeting with what feelings of deep satisfaction the members of the Highland and Agricultural Society of Scotland received the intimation that the Prince of Wales had graciously accepted the post of President for this year. But they felt not only was His Royal Highness honouring that Society, but he was honouring agriculture in broad Scotland too. They knew very well that posts were accepted, but they also knew that duties were sometimes unfulfilled. Far otherwise was it when His Royal Highness accepted a post, or any other member of the Royal Family.

The duties of these posts were amply and well fulfilled to the letter, and he thought that the Prince's presence that day had brought joy and happiness to thousands of loyal Scottish men and women, who would return to their homes in their northern land proud of having been able to say that they had seen the Prince—a Prince who followed so well and fully in the footsteps of her Gracious Majesty, our beloved Queen, and who had so thoroughly gained for himself the title, "The friend of the farmer." He need only say in so graciously presiding over the meeting held on behalf of the Scottish Agricultural Benevolent Institution, His Royal Highness had lent a strong and able hand in a work which had already in its short life brought a ray of happiness into a few of their Scottish homes, tenanted by those who had fallen in the fight; and it would be from this day onward a great duty to see that not only a few homes would be brightened, but that they would do their best to lighten the burden of the declining years of those who had been unfortunate and yet were deserving. They all remembered what pleasure it gave them when His Royal Highness the Duke of York did them the honour of presiding over them at the Aberdeen Show. They might now think that they had reached the height of their ambition when they had His Royal Highness the Prince of Wales himself as their President at their great Show in Edinburgh.

In responding to the vote of thanks, the Prince of Wales said: "My Lords and gentlemen—and, may I say, brother agriculturists?—I am deeply sensible of the kind terms in which Sir John Gilmour has proposed the vote of thanks to me. I am also most grateful for this cordial reception and the kind words which fell from the Lord Provost of this great city. I need hardly tell you, as I mentioned to-day already, the great pleasure it gives me to be your President at this great Show at Edinburgh at the close of the present century. One has often heard of walking in one's father's footsteps. Well, in this instance, gentlemen, I am walking in my son's footsteps. In 1893 you kindly elected him to be President for the year. He had a good reason for not coming, for he married a wife and could not come. But he came the following year, and presided at your Show at Aberdeen. I shall always look back to this

visit with the greatest pleasure and satisfaction, and for the kind and cordial way in which you received me. I hope before I leave to-morrow to have had an ample opportunity of seeing all that is of interest in this Show. I am glad to think that it has reached already the one hundred and fifteenth anniversary of its existence. At the Centenary Show, I believe, there were the largest exhibits of horses, sheep, cattle, and swine, amounting to 1536. I think we have done very well this year when we have exhibits in these classes, as I believe, to the number of 1417. I can only allude for a moment to the Scottish Agricultural Benevolent Institution. It has only been in existence for two years. From what fell from the lips of Lord Mansfield, it is indeed an institution, though young, which is, I think, well worthy of your support. Anything that can be done to alleviate the suffering of the agricultural class, male and female, deserves our sympathy and philanthropic efforts. I need hardly say it will give me great pleasure on this occasion, if I may do so, to give a donation of £50 towards it. I shall not keep you longer, as I think on these occasions that brevity should be the soul of wit; but I thank you once more for your kind reception, and I can assure you how proud I have been to take the chair to-day."

The father has passed away; the son takes up his task. So the world goes on. Happy it is for the Empire that a son of such capabilities as King George V. is known to possess was ready for the succession. For it is a succession that demands capabilities of the highest order. It is true indeed that the duties and responsibilities of kingship are becoming greater and more complex as time goes on, and it may be doubted if at any former time the British Empire had more urgent need for a sagacious and level head upon its Throne than it has at the present moment. With all this in view the elevation to the Throne of King George V. has been hailed with a confidence as sincere as it is universal. Speaking of King George in the House of Lords, the Earl of Crewe said: "He is well known to many of us. We know that he was brought up plainly and simply in an ideal English home. He has enjoyed what is the best of education, and I think we all agree that he is a man of high intelligence and high character."

Majesty has also enjoyed the advantage of knowing more of his wide Dominions, not merely than any Sovereign that has gone before him, but perhaps more than any one of his subjects. He has enjoyed the benefit, the incalculable benefit, of continued close association with his illustrious father. I do not think that the paternal and filial relation has ever been more happily exemplified than in the case of his late Majesty and the present King. By his side, too, is his gracious Consort, one whom we know will help him to bear the glorious burden of the British monarchy."

"Already King George Fifth," said the Marquis of Lansdowne, on the same occasion, "has shown his aptitude for the great task which lies before him. Already we recognise in the son the presence of many of those qualities which served to endear his father. The reign which has just closed has been honourable and happy for the nation and for the Throne. The reign which is now opening will, we believe, under Providence, furnish a not less creditable chapter in the history of this country, and a not less creditable addition to the annals of the Royal House."

"We may look," said Lord Rosebery, "with real hope, real confidence, to the reign of our new King, if he be spared to us. He has led the life of a sailor, and we in Great Britain all love sailors. He has led a pure, healthy, and abstemious life. He is a good husband and a good father. He will exhibit on the Throne domestic virtues which are dear to this country. He has explored every region of the Empire over which he is called on to rule more than any other Sovereign in the long lives of his predecessors. He knows what he has to govern, and at home he has spared no pains to make himself acquainted with every phase of our political life."

The Prime Minister, in asking the House of Commons to offer its congratulations to King George V. upon his succession to the Throne, said: "Our new Sovereign has served a long apprenticeship to his task. He has personally visited almost every part of his world-wide Dominions, and none can forget the weighty and impressive summary of our Imperial problems which he delivered on his return from Australia. He has the aid and support of a Gracious Consort, born and bred among us. He takes upon his shoulders, at a wholly unexpected call, and at a

time of stress and difficulty, as heavy a burden as can fall to the lot of man. Let us assure him that it is not only the solemn prayer and the eager hope, but that it is the confident belief of his people, that he will show himself the worthy son and successor of the great King whom we mourn to-day."

King George's exceptionally high qualifications as a business man are already widely known. "King George," says Lord Balfour of Burleigh, "is a hard worker. May I give one personal reminiscence? I had the honour of serving for three years as Chairman of the Royal Commission on Food Supplies in Time of War, of which King George as Prince of Wales was a member. I believe his Majesty attended every meeting. I am certain he studied the evidence that was put before us, because over and over again when we were drawing up our report we were all struck by his intimate knowledge of naval problems, and by the care and discrimination with which he selected the important from the unimportant matters that had been put before the Commission. I have every confidence that our new King will in the great station to which he is called carry on the traditions which he inherits, and he will, I hope, during a long reign, have the confidence and support of the people over whom he rules."

Scottish agriculturists do not forget that King George V., when Duke of York, was the first member of the Royal Family to visit officially the Show of the Highland and Agricultural Society of Scotland. That visit took place at the Aberdeen Show in 1894, and it was repeated in 1907, when the present King, as Prince of Wales, with the Princess of Wales, visited the Edinburgh Show on the second and third days. On both occasions the Royal visit was intensely popular, and the benefit derived by the Society was so substantial and so lasting that it is still apparent in its activities and usefulness. His Royal Highness evinced the liveliest interest in all the prominent features of both Shows, and in 1907 the Princess of Wales associated herself most graciously and genially with His Royal Highness in doing everything that could be done to promote the success of the Show.

In the universal wave of lamentation which has been passing over the death of King Edward the seventh of Great Britain



Queen Alexandra was not overlooked. Appropriate expressions of sympathy flowed in upon the stricken Queen from all parts of the British Empire and from many countries beyond these bounds. The warm place which Queen Alexandra has so long held in the affections of the British people has been intensified, if that were possible, by the terrible calamity that has darkened her life.

The following addresses to his Majesty King George V. and to her Majesty Queen Alexandra were adopted at the General Meeting of the Society, held on the 1st June :—

*"Unto the King's Most Excellent Majesty,*

*"The Loyal and Dutiful Address of the Highland and  
Agricultural Society of Scotland.*

"MAY IT PLEASE YOUR MAJESTY—

"We, your Majesty's most dutiful and loyal subjects, the Highland and Agricultural Society of Scotland, incorporated by Royal Charter, humbly desire to approach your Majesty with an expression of our heartfelt sympathy with your Majesty, your Royal Consort, and the other members of your Royal House, on the lamented death of your honoured and revered Father, our late most gracious and beloved King.

"Amidst the universal grief at the sudden close of the beneficent reign of the great Monarch, it is a gratifying source of confidence and comfort that the sceptre has passed into the hands of a Royal Successor already so well beloved, known, and trusted, and so firmly resolved, with the guidance of Almighty God, to maintain the great and good work of our late Sovereign. Very respectfully we tender to your Majesty our most humble and dutiful homage on your Majesty's accession to the Throne, and we earnestly pray that your Majesty may for many years, along with your Royal Consort, Queen Mary, reign in health and happiness over a loyal, prosperous, and contented people.

"Sealed with the corporate seal of the Society, and signed by the Right Hon. the Earl of Stair, President, and James Macdonald, Secretary, at the General Meeting, held this 1st day of June 1910.

"(Signed) STAIR, *President.*

(Signed) JAMES MACDONALD, *Secretary.*"

*"Unto Her Majesty Queen Alexandra,*

*"The Loyal and Dutiful Address of the Highland and  
Agricultural Society of Scotland.*

"MAY IT PLEASE YOUR MAJESTY—

"We, the Members of the Highland and Agricultural Society of Scotland, in general meeting assembled, desire to tender to your Majesty a humble expression of our profound sympathy with your Gracious Majesty on the lamented death of your illustrious and Royal Husband.

"We recall with gratitude the large share which your Majesty bore in aiding the zealous discharge of the multifarious duties of his late Majesty, whose high personal character gained for him the homage of the whole world, and whose kindness of heart won for him the love and respect of all his subjects.

"We earnestly pray that Almighty God may comfort and sustain your Majesty in your great bereavement and sorrow.

"Sealed with the corporate seal of the Society, and signed by the Right Hon. the Earl of Stair, President, and James Macdonald, Secretary, at the General Meeting, held this 1st day of June 1910.

"(Signed) STAIR, *President.*

(Signed) JAMES MACDONALD, *Secretary.*"

The Earl of Stair, President of the Society, who occupied the chair, moved the adoption of the addresses. He said they could not forget the fact that on one of the last occasions on which the Society held its Show in Edinburgh the late King occupied the position which he (Lord Stair) had now the honour of holding. They knew the great interest he took in the Society, and the high position he attained to, not only as an exhibitor, but in the prize-list with his celebrated Shorthorns. He had done more for agriculture than any other King who had ever occupied the throne of Britain, and in other respects he was all that a monarch could be. Their hearts went out in respectful sympathy to the King's sorely tried widow, Queen Alexandra.

JAMES MACDONALD

## EXPERIMENTS IN CROSSING TURNIPS.

By JOHN H. WILSON, D.Sc., F.R.S.E., University of St Andrews.

THE yellow-fleshed and the white-fleshed turnips are distinguished from the Swedish turnip or Swede by very distinct characters. To give explicitness to the description of the root-system of turnips in general, a difficulty in terminology has to be overcome. Neither the term root nor bulb is applicable to the swollen basal part of the plant, familiarly known as the "turnip." The under part of the swollen mass is formed from the root proper, but the upper part of it is derived from the stem-like axis which, in the young plant, bears the seed-leaves at its upper extremity and the primary root at its lower. This axis has been called by botanists the hypocotyl, a term quite unlikely to become current in agricultural parlance. The term bulb is applicable strictly to structures of an entirely different nature, such as are exemplified in the onion and the tulip. In the following notes, however, it will be most convenient to use the term *bulb* when reference is made to the enlarged structure in question. As a matter of further convenience, "Swede" will be used to designate the Swedish turnip, leaving the general term "turnip" for the other forms dealt with.

*Swede and Turnip.*

In turnips the substance of the bulb is comparatively soft, but in Swedes it is much firmer. The external coloration of the bulbs of turnips includes several shades of purple, green, and yellow. In Swedes, purple and a greenish shade—the so-called bronze—are the common colours. The leaves of turnips are bright pure green, and fairly hispid; and when the vegetative development is complete, they form a compact rosette at the apex of the bulb. The leaves of the Swede, on the other hand, are bluish-green and glaucous, and at the same period are borne at the top of an erect, short stem—the neck—which develops at the apex of the bulb in summer. During the reproductive phase of both turnips and Swedes, which is reached in ordinary cultivation after a period of quiescence in winter, a tall apical stem—the axis of the inflorescence—arises, and branches freely.

*The Swede Crossed with the Turnip.*

I have carried out many different crosses between Swedes and turnips, and kept the records of the results for several

generations. In careful experimental work the bulbs have to be well grown one season, and in the following season the selected ones are seeded at places out of the reach of intercrossing by insects. It thus takes two seasons until the outcome of selection of individual bulbs can be known.

### *Number and Size of Seeds.*

Only a few of the crosses effected will be dealt with in the present communication. The first one which it is proposed to discuss was between a purple-top Swede and a yellow turnip, the Swede being the seed-parent. The immediate effect of pollination seemed satisfactory enough, but it was noted that when the capsules were ripe the number of seeds in them was smaller than in capsules resulting from fertilisation of the Swede by its own pollen. This circumstance pointed to constitutional incompatibility in the parental types. Further, the seeds in the crossed capsules, instead of reaching the normal size found in the Swede, were distinctly smaller, being virtually like average turnip seed.



Fig. 1.—*Purple-top Swede crossed with Yellow Turnip: first generation.*

When the hybrid seedlings grew, the success of the experiment was soon evidenced by the new characters seen in the leaves and bulbs. The bulbs when lifted were found to be variable. Twelve of them resembled the yellow turnip closely, while six were purple-top. The neck, when present, was very short. In some the leaves resembled those of the turnip rather than those of the Swede.

A matter of much significance was the presence of irregular swellings on the roots and at the bases of the bulbs of several of the plants, these swellings bearing a considerable resemblance to finger and toe disease. Since the first observation was not made of these swellings, it is difficult to say whether observations made of similar swellings on the roots of later generations.

the attack of *Plasmodiophora brassicae*, the organism recognised as being the cause of finger-and-toe proper.

Two sets of the hybrid bulbs of this, the first generation, were selected for planting out—one set of four and the other of three, grouped in each case with respect to uniformity of character. In the former all the bulbs were yellow, and in the latter purple-top. One of the former so chosen is illustrated in fig. 1. The bulb was  $5\frac{1}{2}$  inches in diameter, and was possessed of a very short, tapering neck,  $1\frac{1}{2}$  inch long. The leaf-scars were present on the top of the bulb as well as on the neck.

#### *Flowers and Pollen.*

The flowers of the hybrids were obviously intermediate in character. Microscopic examination of the pollen-grains disclosed the fact that a very large proportion of them were misshapen or abnormally small. On the other hand, a few of the grains were above the normal size, but they, too, were in all probability inferior. The abnormality of the pollen testified to the "violent" nature of the union, and a good yield of fruit was not to be expected.

In the middle of September the plants of both sets presented a remarkable appearance, being a mass of green, drooping twigs, still bearing much flower. The tallest of the set of four was 5 feet. The yield of capsules already ripe in that set was very indifferent, but at the date mentioned there were still numerous capsules ripening or quite green.

#### *Continued Vegetative Growth.*

The appearance of the plants was entirely different from that presented by ordinary yellow turnips at the same date. In the latter a full crop of capsules had ripened, and their vigour had expended itself in the effort to produce the crop. In the hybrids, however, it was quite easy to see that only a small part of the resources of the plant had been expended in the production of capsules, and the capsules themselves were in the great majority of cases undersized. That being so, the reserves of energy found an outlet in the development of a successive series of fine twigs, the latest of which were quite green and bearing flowers when the earliest capsules were ripe, and the shoots that bore them were dead and dried. The ripe capsules had in great part to be sought for amongst the new green twigs. The features just described are highly characteristic of hybrids between Swedes and turnips.

*Irregularity in Fruiting.*

The fruits were usually borne in an erratic way on the branches (see fig. 2). Often a fairly regular series was found, succeeded by a portion of axis destitute of capsules, to be followed again by another fairly complete series. This condition of things is not easily explained. It is undoubtedly the case that ordinary turnip and Swede flowers may, in the absence of insect visits, fertilise themselves, but this, from what I have observed in experiments carried out for the purpose, is not very reliable, and is probably much less likely to happen in hybrids such as those under discussion. The irregularity might simply have been due to a change in the weather, a few fine days bringing out bees which would visit the flowers assiduously, and dust themselves with pollen such as it was; while, on the other hand, when dull weather supervened, their useful function would not be performed. Fruits  $1\frac{1}{4}$  inch long occurred on plants in the group of four, but the majority were smaller. The usual yield for each capsule was two seeds. In a single shoot from one of that series of plants, examined to find what average number of seeds each capsule contained, the following data were secured: The aggregate of seeds in the nine capsules present was 15, of these, 7 were good, 6 fair, and 2 poor. Of twenty capsules, borne on a shoot from one of the group of three plants, and containing an aggregate of 50 seeds, 30 were good, 6 fair, and 14 poor—one capsule being empty. In another shoot from the same group there were twenty-three capsules containing an aggregate of 15 seeds, of which 15 were good, 6 fair, and 1 poor.



Fig. 2.—Capsules of hybrid plant (Swede × Turnip).

large as Swede seed, but there may have been a certain degree of what may be termed inflation.

Seed from both savings was sown in ground where there was no suspicion of the presence of finger-and-toe. On the 4th of August two of the progeny of the three plants were removed because of their poor growth, and they were found to be thoroughly deformed with nodules, recalling attack of finger-and-toe. In foliage many of this series resembled Swedes more or less. A few were distinctly like turnips. The intermediate character of most of the others was obvious in the light blue-green of the foliage. During the course of the autumn twenty-eight plants were removed, owing to their thoroughly diseased and weakened condition. On the 3rd of November, of sixty-two plants still present, only two were decidedly like pure turnips. One of them had a good-sized bulb, but it was disfigured by two very large outgrowths which were close together, the largest being 6 inches across; and although both excrescences were elevated above the ground, they were rooted in it. Smaller excrescences occurred on the lower part of the bulb. The other specimen with the turnip leaves was an extraordinary example of deformity, being changed into a mass of small nodulated swellings of the same general character as in the larger specimen. Many of the others were malformed and poor. Their bulbs were varied in shape and colour—two being green with long necks like cabbage-stalks, and one green with a short neck. Some were purple, flat in form, and without necks; others bore a general resemblance to Swedes in the matter of bulb, neck, and leaf.

Observations were made at the same time on the other series—that derived from the four plants. This series presented general characters identical with the foregoing. Nineteen thoroughly diseased ones were removed. Of forty-five left, three had distinct turnip foliage. One green-top hybrid had a long neck, bearing yellowish leaves. Some bore a marked resemblance to Swedes, but the large proportion were hybrids of very variable character, intermediates of all kinds existing in respect of the length of neck, the shape and colour of the bulbs, and so forth. Taken over all, they were an exceedingly rough lot.

#### *Nodular Disease.*

That the serious deterioration in form of the bulbs of this second generation was not due to anything in the soil was quite patent, pure Swedes side by side with them being as fine as could be wished. A few of the distinctly Swede-like hybrids were good enough, but many of them had very long necks.

The deterioration seemed to be largely due to the prevalence of the counterfeit finger-and-toe. But for the excrescences due to that ailment, many of the hybrids would probably have been shapely and attractive. Six green-top necked bulbs were specially noteworthy in this connection, being very large.

The disease which interfered so seriously with the experiment was, as already stated, not due to *Plasmidiophora brassicae*. In many cases the general malformation was very similar to the one caused by that parasite, but microscopic inspection failed to reveal an organism of any kind. In general, the greater the resemblance which the plant bore to a turnip, the more liable it was to malformation; but malformation was present, to some extent, even in plants which were to all appearance almost pure Swedes. The same deformity has been quite a characteristic feature in other of my hybrids between Swedes and turnips, and may be held to be simply attributable to constitutional weakness or derangement. The incompatibility existing in the parental forms, whatever it may be, finds expression in malformed growth of varying degree. The obvious violence of the cross must also receive full consideration when an explanation of the deformity is sought for. The general conclusion one naturally arrives at from observations of the kind narrated above is, that the Swede has a very different origin from the turnip, and that their affinity is by no means so close as many systematists imagine.

### *Plants of the Second Generation.*

A number of the bulbs photographed together are illustrated in fig. 3. In the centre of the illustration a Swede (x) and a turnip (x) are shown for comparison with the hybrids. One of the hybrids under discussion (c) was a purplish bronze, with much of the Swede character in it, but the neck was short. The foliage closely resembled that of the Swede. In another (p) the bulb was a close approach to a turnip. It was green-topped, the neck long, the foliage hybrid. In a third (g) the bulb was quite Swede-like, bright reddish-purple, with streaks of green, and the neck purple, but there was a dash of the turnip in the foliage. The fourth (h) had a remarkably flat bulb, which was bright reddish-purple on the top and bore a very short neck. The foliage was hybrid. The fifth (j) was a yellow bronze with a long, strong, green neck and hybrid foliage, and the sixth (k) had a yellow bulb closely approaching the turnip, and foliage indistinguishable from the turnip, but the neck was long. This last was greatly misshapen, with excrescences at the level of the ground as well as above.

The smallest figure



traced. The bulb figured as c in fig. 3 was planted out. It proved to be a fine strong plant, having a great resemblance to a Swede, and it bore much seed, evidently in a normal manner. The largest capsule was  $2\frac{1}{2}$  inches long, and the total weight of seed borne by the plant was  $1\frac{1}{4}$  oz. The seed resembled that of the Swede. The plants grown from this seed—that is, plants of the third generation—proved to be a decidedly uniform lot with respect to the leaves and bulbs. The growing bulbs

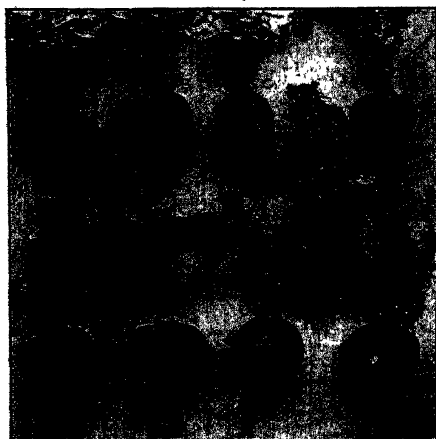


Fig. 3.—E, Swede; F, Turnip; A, B, C, D, G, H, J, K, hybrids of the second generation.

were Swede-like and bronze. They appeared to be fixed. They were, however, poor-looking. When a number which were not thriving were lifted, fairly early in the season, three were found to be distinctly affected with the nodular disease, and nine with cracks and gashes, with the substance within being more or less pulpy. The transverse cracking was usually at the surface of the ground, and the vertical cracks sometimes extended to the crown. In one the crown was split wide

open, the sides firm, and the leaves still growing. The existence of pulpy substance within the rents pointed to the possibility of the ailment associated with it being due to bacterial attack—such, for instance, as has been described under the name of "White-rot." This or an allied disease has wrought very great havoc amongst many of my hybrids, and especially amongst crosses between one kind of turnip and another. It seems natural to suppose that the crown of the Swedes and Swede-like hybrids might be less open to attack than that of turnips.

#### *Bacterial Disease.*

Later, when a selection of eighteen of the plants still in the ground was carried out, sixteen were found to be free from nodules, and two were very slightly affected. While they were all very like bronze Swedes, they were somewhat coarse in shape. Of twenty-four bulbs left in the ground till December, six were more or less seriously destroyed with the presumed bacterial disease. One plant was preserved for seeding: it is

illustrated in fig. 4. The bulb was 6 inches in diameter and the neck thick. It produced a good deal of fine seed, which was sown in the present season (1910). At the time of writing the seedlings have every appearance of being in excellent health.

From the above it appears that the distinctly hybrid forms can be maintained through several generations, but that there seems little likelihood of such a strain as was perpetuated in the experiments just described leading to useful commercial results. Of course, if other parental stocks had been chosen, other strains of a different character might have been evolved, some with strong leanings to the turnip on the one hand or the Swede on the other.

The history of the progeny of other bulbs of the same origin as c was followed out. One bulb is described as j on p. 23, and is illustrated in fig. 3. It bore excrescences in abundance. Along with it were planted two companion bulbs of similar character, but not illustrated. These may for convenience be designated ja, jb. During the course of the autumn all three developed the twiggy growth referred to already as appearing in a former series, flowers being still present in the middle of August. The capsules were borne in the same irregular way, and presented the same hybrid types. j yielded  $1\frac{1}{2}$  oz. of seed, and a



Fig. 4.—Swede crossed with Turnip: third generation.

good many of the seeds were extra large. ja bore a very small quantity of seed—only about 400 in all. jb bore  $\frac{1}{2}$  oz. some of the seeds being large. In general, the seeds of all resembled those of Swedes. The seeds of all three parent plants were sown so as to produce fifty plants of each kind. In series j when in leaf—on the 18th of August—there was a marked distinction between the turnip-like and the Swede-like plants. The former were seen to have bright purple bulbs as well as yellow ones. The most distinct of the turnip-like plants, whether purple or yellow, would easily have been taken for pure turnips. One weather-stem in series j was found to be developed from a single bulb. It was found to be developed from a single bulb. It was found to be developed from a single bulb.

bulbs. Later in the season—in the beginning of October—it was seen that twenty out of forty-seven plants had developed into strong mongrels with very curly leaves. With respect to the proportion of these to the normal forms in the drills, it is very likely that at thinning-time the mongrels would be already showing unusual vigour, and might in many cases be preferred and left to grow. It was impossible to believe that they could be anything else than accidental crosses with curled kale. The surface of the old leaves was glaucous, and the curling was finer in some plants than in others.

#### *Crosses with Curled Kale.*

An interesting field of inquiry is thus opened. No curled kale or other variety of the cabbage was in flower in my plots, but curled kale was in flower in a neglected neighbouring garden a hundred yards from the three plants, J, J $\alpha$ , and J $\beta$ , when in flower. Although these plants would never at any time be prominent, they must have been sufficiently so to attract bees that had been busy amongst the curled kale. The most interesting lines of speculation presented involve the hypothesis that it would seem easier to hybridise a crossed plant resulting from the union of the Swede and turnip with the cabbage than either the pure turnip or the Swede with the same. It would be very interesting to discover whether the necked Swede-like hybrids were more readily crossed in this way than the turnip-like hybrids of similar origin, and if so, confirm the notion that the Swede can claim a strain of the cabbage in its constitution. If it was really curled kale pollen that had been applied, it would seem to have been at least as potent as the pollen of the hybrids themselves.

Amongst the plants of J bearing no trace of curled kale were the following: a flat, bright purple-top turnip, without neck; a purple-top hybrid, also without neck; a green-top hybrid with a neck of medium length; several plants not to be distinguished from pure yellow turnips; and three specimens not to be easily distinguished from Swedes (two purple-top and one bronze).

#### *Swede-like Crosses the least Diseased.*

When occasion was taken, in the beginning of October, to lift a number of specimens of J, it was again noticed that when the examples closely resembled the Swede they were free from nodular disease, or only slightly affected, while those with leanings to the turnip were in most cases seriously attacked. At the same time eight of the plants with curled

green leaves were lifted. They were very much alike in their general characters. All had a bulbous base, which, however, varied somewhat in size. A strong tap-root was a common feature, but some had more secondary roots than others. Some bore single stems, while others bore several.

In December a curled specimen and two of its normal hybrid companions of similar origin were lifted and photographed together. One of the latter (fig. 5, *a*) resembled a turnip. It was flat on the top, deep purple,  $5\frac{3}{4}$  inches in diameter, and had no neck. It bore a considerable number of nodular swellings. The leaves were evidently quite turnip-like. In the other normal specimen (fig. 5, *c*) the bulb was green,  $4\frac{1}{2}$  inches in diameter, the neck  $2\frac{1}{4}$  inches long, and green. The leaves were hybrid. This specimen bore a very large development of the nodules.

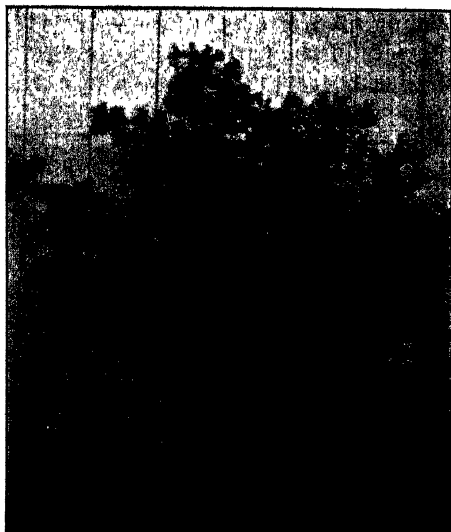


Fig. 5.—*a*, *c*, examples of Swede crossed with Turnip; third generation; *b*, example of hybrid Turnip crossed with Curled Kale; companion plant of *a*, *c*.

In the curled specimen (fig. 5, *b*) the root was large, swollen, and tapering. The stem was green, very thick, and bore numerous branches from within  $1\frac{1}{2}$  inch of the base upwards. The height of the plant was 22 inches. The leaves were very like coarse curled kale.

In the beginning of January eleven kale crosses left growing in the plots were all in fine health. Each had a strong, swollen tap-root, but this varied in size. In one the tap-root was long and thick,  $3\frac{1}{2}$  inches in diameter at the top, and with only a few secondary roots. The stem of the tallest, a single-stemmed plant, was 16 inches. All were green-stemmed. No trace of disease was found in any of the mongrel plants of series 1.

#### *Plants of the Third Generation.*

The progeny of 10 were also traced. This series, beside its common features, had a few plants with a very large development of the nodules.

sown to produce fifty plants. The seedlings of the new generation varied in the same manner as those of J—that is to say, there were plants virtually indistinguishable from turnips on the one hand and Swedes on the other, while there were intermediates bearing all the characters of hybrids. There was also the same admixture of curled mongrels. In this case, of forty-three plants in the drills, fourteen were mongrels. Here, as before, the numbers depended on the chance selection of the young plants at thinning. It is interesting to note that the flowers of the parent bulb planted beside J had also been visited by bees carrying the pollen of curled kale.

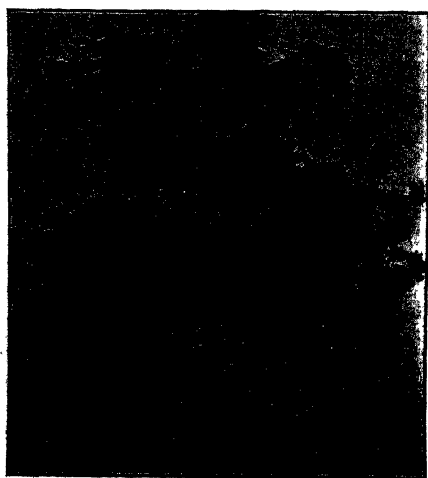


Fig. 6.—a, b, examples of Swede crossed with Turnip; c, d, examples of hybrid Turnip crossed with Curled Kale.

Of nine curled kale crosses left till this date, all were green-stemmed, and, as in series J, no disease was present.

The history of certain of the progeny of Jb was also traced. The seed saved weighed  $\frac{1}{2}$  oz., and it was sown to produce fifty plants. Three mongrels appeared in the drills. Two of them were of the curled kale type, and the third was less curly than its neighbours—in fact, probably indistinguishable from an ordinary “starter” or “shot” Swede. The other plants in the drills exhibited the usual variable series of turnip-like and Swede-like plants and hybrids of different kinds. There was rather more disease than appeared in the series Ja.

Four of the series are illustrated in fig. 6. One (fig. 6, d) was a hybrid purple-top turnip,  $5\frac{3}{4}$  inches in diameter, and bearing

The nodular disease was less rampant in series Ja than J. Fourteen specimens retained until January and then lifted afforded the following notes: of eight quite free from disease, four were purple-top with purple necks; three were purplish with necks of the same colour; and one was bronze with green neck. All were Swede-like hybrids. Five, all green or bronze-top, short-necked hybrids, were slightly affected. One bronze Swede-like plant, with a thick neck 7 inches long, was seriously affected.

one or two small pellets of disease on the root. In another (fig. 6, *b*) the bulb was  $6\frac{3}{4}$  inches in diameter, bronze-top, and also only bearing a few small pellets of disease. One of the two curled kale mongrels illustrated (fig. 6, *c*) was very low-growing—the stem green, with its leaves very coarsely curled. The root was long, strong, and much branched, and a few small nodules occurred on it. The other (fig. 6, *d*) had a green stem 16 inches long and forked at the top. Another stem present had been checked, and was thereby caused to produce branches which gave a bunched appearance to the specimen. A few small swellings were present on the roots. The third mongrel, lifted later, had a long, thick tap-root, and a green stem 10 inches in length.

Of eleven normal crosses left, six were free from disease; and of these, four were purple-top, the largest being very like a long-necked Swede. Of five affected, the worst was a bronze turnip-like bulb.

One of the mongrels (*c*) was planted out, and it produced a small quantity of seed. A limited stock of mongrels was derived from this seed. Of four of them still existent late in the season, two were green and two purple. In one of the latter (fig. 7, *a*) the neck proper bearing the stem was 10 inches long, the scars very large, and the interspaces purple in the lower part and green with purple in the upper part. The top of the bulbous swelling was purple, shading downwards into bronze, the strong spreading root-branches or "fangs" disposed along two opposite sides leaving rootless spaces between. So late as the 24th of March nodular swellings of the size of marbles and of new-developed, and there were two or three scale-like growths on the roots, some of them 6 inches beneath the surface. Nodular swellings occurred on the tap-root, the roots purple and green, and the leaves green.



Fig. 7.—Derivatives of hybrid Turnip crossed with Curled Kale (*c* in Fig. 6).

ous person before it produced seed. The other purple plant was much more rape-like.

Of the two green plants, one (fig. 7, A) had a central stem 18 inches long, with two side branches rising from the ground-level. The tap-root was strong and branched. The leaves were not to be distinguished from coarse curled kale. This specimen was planted out, but it does not appear to have produced any seed. The other green plant had a strong single stem. The root was greatly thickened, tapering, and branched. The leaves were more curled than in the companion plant.

Notes were taken of another plant of the same series as the above—that is, a companion plant to J, J $\alpha$ , and J $\beta$ . The bulb was Swede-like, purple top with some bronze, 6 inches in diameter, with the neck purple, and only 1½ inch long. There were slight traces of nodules. When planted out to seed it grew very tall and strong, being 7 feet 6 inches high; and it was twiggy, though not densely so. It bore unusually few capsules, but ½ oz. of seed was produced. The seed was very large, and had a swollen appearance. It was, as usual, sown to produce fifty plants. When grown, the plants were so far different from the other sets in that there were none closely resembling pure turnips. They were a distinctly Swede-like lot. There was considerable difference in the shape of the bulbs, and sixteen were bronze-top and thirty purple-top.

The poorer plants were lifted on the 5th of October, and all were found to be more or less affected with the warty growths—some seriously, others very slightly. In January, of eighteen plants left, eleven were found to be free from disease, six being purple-top and five bronze. Two of the purple-top ones were long-necked, quite like Swedes, and two of the bronze were also long-necked. No trace of crossing with curled kale appeared amongst this set, although the parent plant when in flower was much nearer the probable source of kale pollen. The further history of this series was not traced.

#### *Reciprocal Crossing.*

An effort was made to ascertain if crossing reciprocal to that in the series above would give similar results. The turnip used in this case as the seed-parent was the same as that used as pollen-parent in the former series. The Swede was a purple-top, not to be distinguished from that previously employed as seed-parent. The crossing took place on the 20th of May, and the capsules were ripe in the first week of July. They were seven in number, and contained a total of about twenty fair seeds. The seeds were mixed together and sown on June 5 of the following year. On the 9th of July three of the seedlings were

transplanted to fill in blanks which had occurred in one of the drills, and it was found that they all succeeded. The hybrid seedlings of the first generation were obviously possessed of a constitution similar to that of the Swede.

The three plants which were transplanted had small bronze bulbs, and the foliage bore a strong resemblance to that of the Swede. They were planted out together to seed. Like examples of the former series, they produced a dense mass of drooping twigs, still in flower, and continuing to bear capsules in the middle of September. Two plants of the first generation which had not been transplanted had purple-top bulbs, and when planted out they also exhibited the same late flowering and fruiting. The yield of seed in all cases was small.

The progeny of some of the bulbs were traced for several generations, and the conclusion was reached that they varied in a fashion not to be distinguished from those of the crosses described in the foregoing pages. They showed the same tendency to fall victims to the diseases which decimated the other

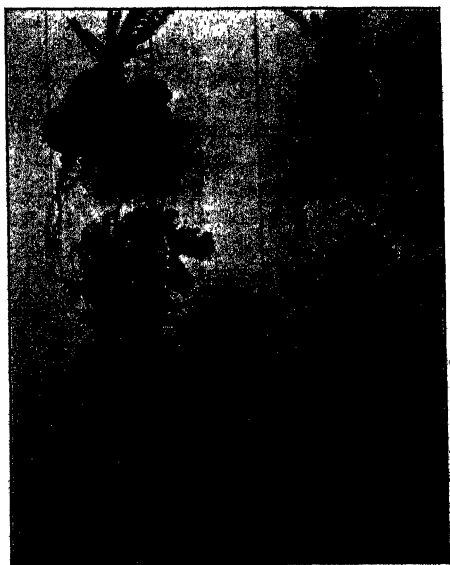


Fig. 8.—Examples of Yellow Turnip crossed with Swede (third generation), diseased.

crosses. Examples of a set of the third generation derived from one plant are illustrated in fig. 8. They were taken from a series of forty-two plants. Of these, five or six, with a strong resemblance to turnips, presented a mass of disease, with, as usual, lumps of considerable size in some, and in others very numerous smaller nodules. Twenty were more or less diseased, while thirteen seemed to be free. Swede-like specimens in this case were amongst those seriously affected.

[I have to acknowledge my indebtedness to the Carnegie Trust for the Universities of Scotland for a grant which enabled me to carry out the experiments described in this paper.]



## HEAVY ROOT FEEDING AND THE DUNGHEAP.

By JAMES HENDRICK, B.Sc., F.I.C., Consulting Chemist to the Society.

THE production of beef is one of the main agricultural industries of the Aberdeen district, and that beef has obtained a considerable reputation. The chief foods used in producing it are turnips and straw. Along with these, more concentrated foods, such as bruised oats and barley and various oil-cakes, are used.

The proportion of concentrated food used is not very great. The ordinary Aberdeen feeder does not use more than 4 to 6 lb. per day of cake and corn even when finishing a beast, and often uses less. On the other hand, he uses a very heavy ration of turnips. From 100 to 120 lb. per day is an ordinary allowance for a beast of 8 to 10 cwt. live weight. The typical North-Eastern cattle-feeder, farmer and cattleman, has an extraordinary belief in the efficacy of turnips in feeding cattle. If you tell him turnips contain 90 per cent of water, he confidently replies, "But it is far better water than is in the burn."

Many analyses of the turnips and Swedes grown in the Aberdeen district have been made by myself and others. So far as analytical results go, Aberdeen turnips are not found to differ greatly from those grown in other districts, numerous series of analyses of which have been published. Despite the widespread belief that Aberdeen turnips are better than those grown elsewhere, it is not found on analysis that they contain any less water on the average. Like others, they contain about 90 per cent of water, or perhaps in the case of yellow turnips a little more.

Feeding cattle readily eat the great quantities of turnips mentioned above, consequently they consume far more water than is necessary for their life-processes.

In an experiment carried out some years ago under the auspices of the Agricultural Department of the University of Aberdeen, one lot of 10 cattle were fed on a ration of 112 lb. of turnips daily, together with straw and concentrated food, while another lot of 10 received only 56 lb. of turnips daily, together with straw and a larger allowance of concentrated food. Those which received 56 lb. of turnips daily were offered water daily, but it was seldom that any of them accepted it, and even when they did drink they never took more than a mouthful.

The experiment lasted three months. The animals which

received 56 lb. of turnips consumed in them a little over 50 lb., or 5 gallons of water daily. This was evidently a sufficient allowance for them, for they did not show a desire for more water. The cattle, therefore, which were given 112 lb. of turnips per day were consuming at least 5 gallons of water daily in excess of their requirements, all of which they had again to get rid of through the urine.

Cattle receiving such quantities of turnips, urinate fully and almost continuously. Their urine is great in quantity but thin in quality. There is little experimental evidence available as to the volume and composition of the urine of cattle heavily fed with roots. An experiment carried out by the late Dr Aitken, the results of which are recorded in the 'Transactions' for 1891, pp. 211-220, gives some information on the subject.

In this experiment an ox of about 9 cwt. live weight was fed for four periods of 4 weeks each, as shown in Table I., with gradually diminishing quantities of turnips. As the turnips were diminished he received an increasing allowance of linseed-cake. A record was kept of the straw which he ate and the water which he drank. A record was also kept of the weights of dung and urine which he excreted, and the average percentage of nitrogen in the urine was determined for the first two periods.

TABLE I.

Food per day.					Excrement per day		Nitrogen in urine.
Period.	Turnips.	Straw.	Linseed-cake.	Water.	Dung.	Urine.	
	lb.	lb.	lb.	lb.	lb.	lb.	Per cent.
1	119	9½	0	0	29	58	0.22
2	60	18½	8	0	80½	15½	0.58
3	30	14½	4½	22½	84½	9	
4	0	14	6	47	84	7	

In this experiment when the animal received only dry food he drank nearly 5 gallons of water per day. Even 60 lb. of turnips supplied him with more water than was necessary. The enormous diminution in the volume of urine between Periods 1 and 2 is noteworthy.

A somewhat similar result is shown in an experiment mentioned in Warrington's 'Chemistry of the Farm,' 1894, pp. 217, 218, in which cows fed on 154 lb. of mangels per day gave 42 lb. of faeces and 39 lb. of urine per day. The urine contained only 0.124 per cent. of nitrogen. When they were fed on 26 lb. of mangels per day the quantity of

water per day, they gave 48 lb. fæces and 14 lb. of urine per day, and the urine contained 1·54 per cent of nitrogen.

There are very numerous experiments on record showing the weights and composition of the fæces and urine of cattle under what might be called normal conditions as to consumption of water—that is, where the animals were consuming only the amount of water necessary for healthy existence, and were not consuming excessive quantities in watery food. These experiments show that under such conditions the weight of the urine is not more than half the weight of the fæces. On the other hand, as the above experiments show, where heavy rations of roots are fed, the urine may weigh more than twice as much as the fæces.

When the urine is abundant it is weak, and only a small part of it can be kept in the manure. It is impossible to use sufficient litter to absorb 60 or 80 lb. of urine per beast per day; and even if it were absorbed it contains such a low percentage of nitrogen and potash that it would diminish and not increase the percentages of these in the resulting manure, for straw itself contains higher percentages of nitrogen and potash than such weak urine.

On the other hand, when an animal passes only 10 or 15 lb. of urine per day, it is comparatively easy to retain the whole or the greater part of it in the dungheap, and as it is comparatively rich in nitrogen and potash it makes comparatively rich dung. Such urine when absorbed by the straw raises the percentage of nitrogen and potash, since it contains higher percentages of these valuable constituents than does the straw.

These facts have an important bearing on the quality of dung made where heavy root-feeding is carried on, and also on the manurial value recovered from the feeding-stuffs used. In connection with experiments carried out under the auspices of the Aberdeen and North of Scotland College of Agriculture, the writer has made several analyses of dung. It was noticeable that though the animals producing the dung were well fed, and in most cases were receiving a considerable allowance of concentrated food, the dung was poor in nitrogen and potash. At first it seemed puzzling that this dung should be so much poorer than what is recorded elsewhere for the manure made from the excrements of well-fed animals. But careful inquiry, together with analysis of samples of dung and liquid manure, show that this is a result partly of the loss of urine which takes place when cattle receive heavy rations of turnips, and partly of the low quality of the small proportion of the urine which is retained in the manure.

In Table II. the composition of a number of samples of fresh

and rotted dung is given. The fresh dung analyses represent averages over a considerable period of the manure in the condition in which it was removed from the byres. It is very difficult to obtain fair samples of dung for analysis whether in the fresh or in rotted condition.

Each of the analyses of fresh dung in Table II. is the average of six different samples taken on six different weeks. Each sample was obtained by mixing a portion of the dung each day when the byre was being cleared out. A considerable sample of this mixture was taken and placed in a large zinc-lined box. The same was repeated every day for a week. The box was then removed to the laboratory, and from its contents an average sample drawn for analysis. Each of the analyses in the table, therefore, which is the average of six such samples, represents a good average sample of fresh dung produced under the conditions of the experiment.

TABLE II.—ANALYSIS OF FARMYARD MANURE.

	FRESH.		ROTTED.			
	Average of Six Samples.		Covered.		Uncovered.	
	1907-8.	1908-9.	1908.	1909.	1908.	1909.
	0	0	8	6	8	6
Months Rotted . . . .	0	0	8	6	8	6
Moisture . . . . .	Per cent. 73.82	Per cent. 78.58	Per cent. 77.46	Per cent. 79.10	Per cent. 71.82	Per cent. 78.71
Ammoniacal Nitrogen . .	.094	.074	.086	.088	.014	.084
Organic Nitrogen . . .	.845	.256	.413	.256	.688	.855
Ash . . . . .	2.98	2.70	8.50	8.20	6.00	4.66
Silicious Matter . . .	1.40	1.26	1.72	1.69	3.84	2.70
Phosphoric Acid . . .	.279	.226	.334	.284	.389	.328
Lime . . . . .	.188	.177	.205	.194	.345	.255
Potash . . . . .	.471	.411	.536	.381	.740	.461

In the experiments in which this dung was produced the animals were not receiving what would be considered in the Aberdeen district heavy feeding with turnips. They were receiving a good allowance of cake and corn in addition to oat straw. The animals were of different ages, and their weights ranged from about 4 cwt. to about 10 cwt. For purposes of comparison the food per day has been reduced to what would be given to 10 cwt. live weight. The average consumption of food per day was 85 lb. straw, 25 lb. turnips, 10 lb. cake, and 10 lb. corn.

linseed-cake 3 lb., bruised oats  $3\frac{3}{4}$  lb. In both years the straw was partly used as food and partly as litter. What was used as food was not weighed separately.

Although the turnip feeding was not specially heavy, a large part of the urine was not retained in the manure by the litter, but ran away in the drainage of the byres. That this urine was weak, and much below the usual average in solids, nitrogen, and potash, is shown in the first column of figures in Table III., which gives an analysis of fresh urine taken during the experiment of 1908-09.

The manure in these experiments was placed in each season partly in an open heap and partly in a heap under cover. In one week the manure went to the open heap, the next week to the covered heap, and so on alternately for the six weeks during which dung was collected for the experiment. In these heaps it was allowed to rot and then again sampled. The average time of rotting for each sample is shown in the table, together with the analysis of an average sample from each heap in each year.

The main point to notice about these analyses is that the dung, whether fresh or rotted, is, generally speaking, of low quality. The only sample in which the nitrogen and potash, constituents which are largely derived from the urine, are up to the average for the dung of well-fed animals is the "uncovered" sample of 1908. This sample was drawn after a period of dry weather, and contained a lower percentage of moisture than any of the others, which partly accounts for its higher percentage of other constituents.

It is noteworthy, though it does not affect the argument of this paper, that the manure made in the open from which all the excess liquid could run away quite freely and which was washed by the rain, is in both years higher in total nitrogen and in potash, though lower in ammoniacal nitrogen than the manure made under cover. This is accounted for by the fact that the uncovered heaps underwent much more fermentation and lost a much greater proportion of their total weight of dry matter through the fermentation than the heaps made under cover. Thus in 1908 the covered heap lost 14.3 per cent of its dry weight in three months, while the uncovered heap lost 38.3 per cent of its dry weight. The covered heap was in a much "greener" condition than the open heap at the end of the fermentation. It smelt quite different, and the straw in it was still quite tough. It contained more ammoniacal nitrogen, as it retained more of the urine, till the end of the period of rotting. The analyses show, then, that dung made under these conditions of feeding, whether fresh or rotted, whether made in the open or under cover, is generally of poor quality in

nitrogen and potash, the two most important constituents contained in the urine.

Sometimes the drainage from the byres and the liquid which escapes from the dungheap is collected in a liquid-manure tank, and some attempt is made to utilise it, but as a rule it is allowed to run to waste. In Table III. a few analyses of liquid manure are given.

TABLE III.—LIQUID MANURES.

	FRESH URINE. Feeding Cattle.	LIQUID MANURE FROM TANK.				
		Each an average of 3 Samples.				Average of 9 Samples.
		Balgreen.	Balgreen.	Burnside.	Laurence-kirk.	
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Water . . . . .		97.47	99.26	98.44	98.30	98.68
Total Solids . . . .		2.53	0.74	1.56	1.69	1.33
Total Nitrogen . . .		.163	.028	.209	.166	.184
Ammoniacal Nitrogen .		.012	.020	.182	.137	.113
Phosphoric Acid . . .		.002	.015	.008	.033	.019
Potash . . . . .		.097	.142	.393	.390	.329
Lime . . . . .	trace.		.023	.012	.022	.019

The first is, as stated above, an analysis of an average sample of fresh urine of well-fed cattle which received an allowance of turnips considered moderate in the Aberdeen district. It is very different from the analyses of urine of cattle usually given in text-books. It contains less than 1-5th of the percentage of nitrogen and less than 1-10th of the percentage of potash usually shown in the average urine of well-fed cattle. The next three analyses are each the average of three samples of liquid manure, and come from three different farms. All consisted of drainage from the byres and dungheap collected in a tank, and were analysed in connection with experiments on the utilisation of liquid manure.

The analysis marked Balgreen is exceptionally poor, as rain-water was getting into this tank and diluting the manure. The samples from Burnside and Laurencekirk were of better quality. These included little if any rain-water, and consist practically entirely of urine from the byres and drainage from the manure-heap. They are much richer than the Balgreen sample, but are still much below average cattle urine in nitrogen and potash. In both these cases the tanks from which the samples were getting large allowances of turnips and other food.

turnips per head per day. At Burnside they were a mixed group of various ages and weights. They were getting turnips which would amount to over 100 lb. per day for each 8 or 10 cwt. of live weight.

When the liquid manure is not retained in the dung, and is not otherwise utilised, a very large part of the manurial value of the feeding-stuffs, and especially of the cakes and other concentrated feeding-stuffs used, is lost. The more highly digestible a food is—and rich concentrated foods are, generally speaking, also the most digestible foods—the greater the proportion of the manure value of the food which is found in the urine.

In the last volume of the 'Transactions' (1910, pp. 125-142) there is a valuable paper by Dr Crowther on "The Distribution of the Manure Values of Foods between Dung and Urine." In this paper are tables which show, in the case of a large number of well-known foods, what part of the constituents of the food of manurial value is found in the fæces and what part in the urine, and also the estimated money value of the constituents found in the fæces and urine respectively. It will surprise most farmers and valuers to find how large a part of the value is found in the urine.

Nitrogen is the most costly of manurial substances, and makes up by far the largest part of the manure value of cakes. In the case of linseed-cake, about 10 per cent or thereby of the nitrogen is undigested, is excreted in the fæces, and finds its way to the dungheap as insoluble organic nitrogen, but about 85 per cent of the nitrogen is, in the case of fattening animals, excreted in the urine as soluble nitrogenous compounds. In the case of animals heavily fed with roots this 85 per cent is often nearly all allowed to run to waste, for it cannot be soaked up by the litter and retained in the dungheap except to a very small extent, and the drainage which contains it is seldom collected and utilised.

No tables dealing with the valuation of the manurial residues recovered from foods fed on the farm take this great loss, which commonly occurs with heavy root-feeding, into account. How far similar conditions prevail in other districts I have not sufficient information to show, but at any rate in one large and important district in which the fattening of cattle is a great agricultural industry, and in which immense quantities of linseed-cake and other concentrated foods are consumed, none of the well-known tables for estimating the unexhausted manurial values of foods are applicable to the ordinary conditions of farm practice. They all give a great over-estimate of the unexhausted values actually recovered from such foods as used by the ordinary farmer along with a heavy allowance of turnips, at any rate in all cases where the liquid manure is

allowed to run to waste. Yet valuers constantly depend on such tables as those of Hall and Voelcker, or on the other local tables, which are partly founded on those more scientific ones. If they do not also inquire as to whether the liquid manure has been saved and utilised, and make heavy deductions if it has not, they are calling on the incoming tenant to pay for manurial residues which he cannot receive.

## MODERN BEE-KEEPING.

By D. M. MACDONALD, F.E.I.S., Schoolhouse, Morinsh, Ballindalloch.

QUITE a revolution in apiculture followed the introduction of the modern frame-hive, and these homes of the bees are fast taking the place of the obsolete straw skep. The latter was a sealed book, whose dark interior was hidden from man's prying eyes, and the working of its denizens was a deep mystery to their owner from the day on which the bees were first run in as a swarm, until he cruelly placed them over the sulphur pit in order that he might appropriate their hardly-earned sweets, the bees thus paying with their lives for their kindness to their owner.

Under modern methods a new and better system of management prevails. Content with only a fair share of the spoils, apiculturists carefully preserve the lives of their bees, and even supply them with extra stores in a case of emergency, to ensure their safe survival over winter until the opening of spring affords fresh nectar. Then these hives are open at the will of the bee-keeper, so that he can investigate the condition of the interior. The life-history of each stock of bees is known from start to finish, and each successive page can be read as an open book. Moreover, their owner can manipulate them as he pleases, take from them, or add to them, either bees, brood, or honey, and if they are weak he can strengthen them as he desires. In this fact lies the chief element of success, and the ease and comfort with which the pursuit may now be followed, even by the busy man, is a leading feature of the frame-hives.

Swarming, the old bugbear of the straw-skeppist, has been practically eliminated, and the long periods of patient waiting for swarms are a thing of the past. The bees come, or even the colonies may be multiplied, at will.



venient. Frame-hives, allowing as they do of almost unlimited expansion and contraction, are the secret of this success; and by their use honey of the purest quality, and presented in the most taking form, can be obtained, apart from the brood body. This delicious surplus, either as comb honey or extracted, is fit to take a place on the table of any prince in the land, and presents a great contrast to the conglomerate mass known to our forefathers.

### *Yields and Profits.*

These surplus takes, too, far exceed the old, not only in quality but in quantity. As examples of this the following cases may be instanced: A gentleman near Forres frequently secures 200 lb. from his best hives; and from an extensive apiary he obtains an average of over 100 lb. A large Morayshire farmer counts on a general average of 1 cwt. of honey from each of his half-dozen hives. A few years ago a bee-keeper in the South of Scotland secured from 59 hives a total of 8176 lb. surplus; and last summer, not a very good season, he reports a gathering of 5350 lb. from seventy-two stocks in *thirteen days*.

These are, of course, extreme cases, where bees are seen at their best under the most favourable circumstances, but they serve to show what can be done. In normal conditions, and taking an average of seasons, £1 from each colony may be considered very fair results, but very frequently the surplus is double that amount.

Honey finds a ready sale at a paying price, so the prosecution of the industry pays, and pays well. Indeed it may be safely asserted that no other of the minor industries about a farm gives anything like the same return for the money invested, while the amount of labour required is of the lightest and least exacting.

### *The Danger from Stinging.*

Many are deterred from embarking in the pursuit of bee-keeping from the dread of stings, but this is a mistake. Judicious and gentle handling, coupled with the use of smoke, enables the operator to work his will with bees. If one gets to know bee nature, and treats his bees in a sensible way, stings will very seldom be felt. Even when they do come, the experienced bee-keeper learns to disregard them, while the veteran treats them with contempt, and proceeds with his manipulations as if stings did not exist. Fortunately, it so happens that the system gets inoculated, to such an extent at least that the painful effect ceases to be felt. Familiarity with bees and their ways, too, enables the apiarist to avoid a stinging,

because he can get the creatures into such a frame of mind as to take from them the desire to use their weapons.

### *Starting Bee-keeping.*

In starting bee-keeping it is advisable to begin with the best style of hive, and perhaps the best all-round is that known as the W. B. C. It has an inner and an outer body, with a dead air-space between, which leaves the interior cool in summer and warm in winter. Being roomy, and containing ample space for both the brood body and super area, it is easily operated, and, being capable of gradual expansion, it adapts itself to any system of management. It looks well in any bee-garden, and can be bought for about 20s. complete.

Cheaper hives can be purchased from 10s. up, and, if they are not so perfect in finish, they are generally good and efficient, while the bees work in them as industriously as in the high-priced ones. Even cheaper hives, not costing any more than a straw skep, can be made by any man who can handle tools, from used boxes, for not more than half-a-crown; so that even cottars can start cheaply on modern lines and with modern hives. The writer has in his apiary such a hive, made by a Cumberland miner out of empty dynamite boxes, well finished and complete in every way for the small sum of 2s.

In making a start it is best to begin with everything about the apiary fresh and new. Have all hives one single pattern, in order that all corresponding parts may be interchangeable. Have all internal fittings, not only in the body of the hive but also in the surplus chambers, of one uniform model.

If working for comb honey, all crates for sections should tier up in regular form; all sections, dividers, and other fittings should be capable of being interchanged. In the same way, when working for extracted honey, body boxes, shallow frames, and other parts, should be identical in shape and size. This secures not only ease and comfort in manipulating, but is often a saving in expenditure on parts and appliances used, and it looks ever so much better. It is essential that all of these parts should be not only true to pattern, but put together with great exactitude, and therefore all internal fittings should be purchased from the same dealer. Hives, too, are best so bought, because everything is cut by machinery to a very exact gauge.

In laying out the apiary, place the hives in such a position that they can be seen from some of the most used rooms of the dwelling-house. Stand them facing nearly south, with a space of two or three yards between each, and so that any manipulations may be carried out from the rear or at one side.

The space in front should be open to afford the bees a clear flight when going out or returning to the hives from the foraging grounds.

The best way of starting is by purchasing a hive ready fitted for the bees, and getting an English swarm about the early days of June. This should weigh from 4 lb. to 5 lb. of bees. The cost is likely to be 15s. and the carriage little more than 1s. One queen heads the swarm, and the worker bees may number anywhere from 20,000 to 30,000.

When this large army is hived in a new fresh hive with full sheets of foundation nicely wired in, it is a perfect marvel to observe how rapidly the industrious little creatures ply their task until, in from three to four weeks, they have filled their body-hive with beautifully built comb, to the number it may be of 50,000 cells, almost every cell filled with eggs, larvæ, young bees, or honey. These cells are regular hexagons, and are models of architecture and construction. A study of the building of these internal works, close observation of the development of the egg into the perfect insect, and an acquaintance with the perfect order and government of the hive interior, add greatly to the interest of bee-keeping.

The life-history of the bee as well as a study of its physiology and anatomy is a very fascinating one. A feature well worth considering by farmers is the fact that bees are the chief pollinators of plants. It is a well-established fact that the principal agents aiding cross-fertilisation of most plants, flowers, and fruit-trees are the honey bees. All the trefoils are greatly benefited by the visits received from *Apis mellifica*, so are all turnip plants left for seed; and indeed all the blooming plants on fields and meadows are considerably enriched by the repeated visits of these industrious toilers.

### *Sources of Honey.*

But the chief object of keeping bees is the securing of surplus honey for sale. Almost every single blooming flower affords nectar to the bee, but a few stand out prominently from the lengthy list. Sycamore, willow, and fruit bloom on bush and tree yield well early in the season, and limes, where abundant in late July, yield profusely, but the two staple sources are clover and heather.

Over a great part of Scotland the various clovers are sown plentifully on every farm, and they yield not only long and well, but few, if any, plants supply nectar of a better quality. Blooming, as most of the trefoils do, during the greater part of the summer, they give a bountiful supply of the finest grade honey. In the comb or extracted form clover honey gives a

delicious sample; and even the most fastidious palates never tire of it, as they might do of a stronger-flavoured honey.

In a great part of the country the honey harvest is greatly prolonged when the glorious bloom of the heather is within reach of the bees, or even so near that hives can be transported to the hills, and motor traction now makes that task a light one. Honey from the heather is most in demand and fetches the highest price, for many seasons being about double that obtained for clover or flower honey. It is safe to assert that ten times the quantity now produced might easily be disposed of at a paying price if the market were steadily supplied.

### *Bee-keeping on Small Holdings.*

From the Customs' Returns we learn that as high a sum as £60,000 is spent some years on foreign honey, most of it of a low grade. This shows that there is scope for a considerable extension of the pursuit, and as the home product may be sold at from three to four times the price of the imported article, it proves that a very large sum is at present going a-begging. Any development of the smaller holdings movement should take particular notice of this minor industry, which for the money invested would pay better than any of the other side lines. It is not even necessary that a bee-keeper should have an actual holding to engage in this paying pastime; for wherever one has a small garden, or can secure a few rods of ground, there he can keep an apiary. His busy toilers are not confined to his own small plot, but roam all over the country-side for two or three miles in every direction, levying toll on almost every flower that blooms. The honey from such hives is as sweet and palatable as that produced from those of the wealthiest apiarists. At present, indeed, we find some of the most successful bee-keepers in this class.

A point well worth considering is that for one now engaging in the pursuit ten might profitably carry it on, at small cost with large profits, as at present vast stretches of honey-yielding blossoms are wasting their sweetness for want of bees to gather it up gratis.

At present our public schools and higher-grade schools are taking up the subject of bee-keeping as a nature study, and our agricultural colleges are disseminating a knowledge of the pursuit by lectures, demonstrations, and teaching the best way of starting, the best hives and appliances to use, and the newest and most up-to-date means for carrying on bee-keeping as a paying industry. In Ireland it is conducted under the aegis of the Agricultural Department, and there and in England the county councils give it support by means of substantial grants.

In Scotland, unfortunately, it receives little support, and yet in no other part of our islands can it be made to pay so well.

### *Honey for the Market.*

All honey surplus is turned out in the form of sections for comb honey, or bottled up when extracted. Practically all comb honey is now placed on the market in the form of one pound sections. The wood for these is a beautifully white basswood imported from America, cut to exact size,  $4\frac{1}{2}$  in. by 2 in., and each of these when folded up and filled with honey by the bees should weigh just one pound. Twenty-one of these are inserted in each crate in three rows of seven sections, with dividers between. These secure that the finished article shall be turned out well and accurately built, and thus be capable of being carefully packed in order to travel safely. In this form, too, they present honey of a pleasant and agreeable appearance, and of exquisite purity and delicacy, as nothing but the genuine nectar from the flowers finds it way to the super chambers where this dainty is manufactured by the bees.

One of these crates should be placed on each hive right above the brood frames, as soon as bees become numerous and nectar in any abundance begins to come in from the fields. Later, when the first is from half to three-quarters filled, another crate should be placed either above or below, and these can be added while the flow lasts,—the time when they are placed on the hive, and the number used, depending on the season and the force of bees. Each of these section boxes should have a piece of pure wax comb foundation of the thinnest pattern, with the base of the hexagonal cell impressed, placed in the saw-cut on top to act as a guide to the bees. Some use starters only, others half sheets, but bees do best and do more expeditious work when full sheets are inserted.

To ensure profitable returns all colonies should be strong; and when the hives are almost boiling over with bees an excellent return can be counted on if weather proves favourable. It is quite a mistake to expect much profit from even medium colonies. Only strong ones can be thoroughly depended on for the best work and highest profit. This is particularly true of any late flow such as the heather. Blooming as the plant does at a period when the nights begin to chill, every hive should be teeming with bees to secure the best returns.

All kinds of honey, with the exception of that from the heather, can be extracted by means of a machine known as a honey-extractor, which, after the combs are uncapped, by centrifugal force runs the honey out of the cells into a receiver, and that without in any way injuring the delicate comb struc-

ture. For the busy man this is the best and most profitable form of honey to work for as surplus. As the combs are returned time after time to be refilled by the bees, it saves them all the work of rebuilding, hence it is generally considered that fully 50 lb. of extracted honey can be obtained for 30 lb. of comb honey in sections.

A further advantage derived from this system of working is that swarming is much more easily controlled. Indeed it can be wellnigh eliminated, because, by giving the bees unlimited room above and below, they are never brought into that condition of congestion which begets the swarming impulse. Less time and attention are therefore required to be given to the bees during June and July, as all of the extracting can be done at the end of the season when tiering up is practised. The surplus honey, too, when well matured and bottled carefully, will keep for several years.

In hives managed on this principle colonies can be made extra strong when headed by prolific queens, if in early summer they are given the unconfined range of a double set of frames in the brood body, and if sets of shallow frames are placed above these according to requirements. Later, when all fears of swarming are over for the season, the queen can be confined to the lower chamber.

In even normal conditions a hive of bees managed in this way should easily yield from 50 lb. to 100 lb. of surplus honey in an average season.

## WEEDS AND THEIR DESTRUCTION.<sup>1</sup>

By H. C. LONG, B.Sc. (Edin.), London.

AMONG the many troubles of the farmer is one which is ever with him—the fact that he must continually combat a host of plant pests which are included under the expressive name of “weeds.” There are, we understand, a few farms which may almost be described as “weedless,” and more which are comparatively “clean,” but experience shows that the vast majority of farms include at least some fields which are far too weedy, while not a few farms are almost wholly “foul.”

It is easy to say that the best means of keeping down weeds on arable land consists in the free use of tillage implements.

<sup>1</sup> The illustrations in this article are from the writer's book, “Common Weeds of the Farm and Garden,” by permission of the publishers, Messrs. Smith, Elder, & Co.

in the summer months; but even this is not exactly a royal road to a respectably clean farm. In general, tillage operations, suitably carried out, are the most successful weed-killers, but all depends on the words "suitably carried out." By this we mean that *weeds vary in kind and in life-history*, and the means of destroying them must be tempered to their constitution; and often the keenest and cleanest of farmers will find it necessary, in combating a given species, to put a "stout heart to a stey brae," and persist for a considerable time before success attends his efforts.

The admirable article by Professors M'Alpine and Wright in the 'Transactions' for 1894 has lost none of its savour and weight, but we feel that a restatement of the weed question, embodying information which has so freely been published during the last few years, and showing illustrations of some of the most troublesome species, may prove useful and acceptable to Scottish agriculturists, to a number of whom the writer is much indebted for useful data as to the worst weeds of Scotland and the best means of combating them.

### *The Damage done by Weeds.*

We may in the first place consider briefly to what extent weeds damage our crops and stock. That the damage is serious will be self-evident when our tale is complete; for the majority of weeds do not stand on ceremony, their robbery extending right and left,—perhaps we should say that they act in a compound way.

Weeds are serious pests in a variety of ways according to their kind: (1) by crowding cultivated crops and robbing them of food, moisture, light, air, and heat; (2) by acting as parasites, or by climbing among and dragging down the crop; (3) by stopping up drains, hindering proper cultivation, and rendering harvesting operations difficult; (4) by giving rise to tainted milk and meat, or acting as direct poisons to stock; (5) by reducing the value of commercial seeds, flour, &c.; (6) by harbouring injurious insects and fungi; and hence (7) causing considerable cash losses to the farmer or gardener. We may usefully consider these points in turn.

(1) It is at the outset clear that two plants cannot occupy the same space, and if a weed and a turnip endeavour to do so one of them must "go to the wall" or both will suffer, not only because of loss of room to expand, but because the weed is competing with the crop for food, moisture, air, light, and heat—an unstinted supply of which is necessary for the full development of the crop. In some cases, *e.g.*, in the case of plantains, the occupied area is practically covered by the flat broad leaves,

which kill growing seedlings or grass. A similar remark applies to chickweed, silver-weed, and other species. As regards *plant-food*, it may be simply stated that weeds require it like farm crops, and the analyses of six common weeds showed that the percentage contents of the dry matter contained on the average—nitrogen, 2.38; phosphoric acid, 0.93; potash, 3.08; lime, 2.86: a heavy crop of weeds, therefore, must absorb a large amount of plant-food—to the loss of the farmer's crop.

Moisture is passed off into the air by all plants, by means of transpiration, and experiment has shown that during growth a 25-bushel crop of wheat disposed in this way of 500 tons of water. Weeds also transpire, and most certainly pump into the air large quantities of moisture which, especially in a hot summer, would be of great value to the cultivated crop.

A free circulation of air is necessary for root-breathing and gaseous interchange generally, as also for the ripening and drying of grain and other crops, in connection with which weeds are frequently most troublesome and cause great loss. Heat is required both for raising the temperature of the soil to assist growth of the crop and to aid in ripening grain crops; while heat is not available without sunlight, which is necessary for the development of the chlorophyll or green colouring matter, and for the continuation of the process of food-making from the simple substances taken up by the plant. Now the more the crop is infested with weeds the less air, heat, and light will be available for the crop, which is hence restricted in its growth.

(2) Some weeds are parasitic on the living crop, absorbing the whole or part of their subsistence from the plant juices of their "host." Among them are dodder, broom-rape, and yellow rattle. Such weeds do great harm, and clover crops in particular may be ruined by them. On the day on which these lines are penned we have read of a case in the United States in which 68 acres of clover were to be ploughed up owing to dodder infestation; and many bad cases have come to notice in Britain.

Other weeds climb or twine amongst crops, and tend to strangle them, and by sheer weight drag them down. Among grain crops, the bindweeds, cleavers, and wild vetches may do great damage in this way, while they are a great hindrance to harvesting operations.

(3) Drains are frequently stopped up by the growth of deep-seated roots of weeds, especially perhaps where drainage is necessarily shallow; "singling" or "setting out" of various crops is rendered troublesome by a multitude of weeds; and all kinds of tillage operations are hindered and prolonged in a similar way. At corn harvest, too, mowing and reaping are more difficult owing to the presence of many weeds, particularly climbing and binding species; curing or drying is prolonged,



and hence there is risk of loss by exposure; while carting, stacking, and thrashing are too often difficult owing to the presence of a multitude of thistles.

(4) The milk of cows—and hence the butter, &c., manufactured from such milk—is often badly tainted where cattle have access to such weeds as garlic, garlic mustard, and other species; while meat is occasionally equally noxious owing to animals having eaten garlic. A case came to notice last year in which a number of sheep had been pastured in a field in which a large quantity of ramsons grew, and the mutton was shockingly tainted. There are also many poisonous weeds, and numerous fatalities in relation to live-stock have been recorded. One instance may be recorded here. Mr J. C. Rushton, instructor in agriculture for the Staffordshire County Council, states that a farmer in South Staffordshire in one year lost seventeen milking cows; in the autumn of 1908 he lost seven calves; and in 1909 a number of sheep and a number of cows. After a deal of trouble it was found that a certain field which came into the question contained any quantity of meadow saffron and water hemlock, which was the cause of the loss of stock—('Staffordshire Weekly Sentinel,' August 21, 1909).

(5) The question of seed-testing would occupy a volume by itself, but it may be said that the presence of weed-seeds in agricultural seeds has caused enormous expense both to farmers and seed-merchants, owing to the necessity of "cleaning them out," while the entry of noxious weeds to farms through the medium of impure agricultural seeds has also caused immense loss of crops as well as great expense in combating the weeds. In relation to milling, also, wheat is often reduced in value owing to the presence of the seeds of black bindweed, wild tares, cow-wheat, or corn cockle, the two last even being dangerous to health owing to poisonous properties.

(6) Many harmful insects and fungi are harboured by weeds which afford them shelter and food when cultivated crops are absent. As examples, the following list will suffice:—

WEED "HOST."	INSECT OR FUNGUS HARBOURED.
Charlock or other cruciferous plants .	Turnip flea beetle or "fly."
	Cabbage-root fly.
	Cabbage or turnip gall weevil.
	Diamond-back moth.
	Finger-and-toe in turnips.
Docks, goosefoot, thistles, dandelion, sow thistle	White rust of cabbages, &c.
	Mangold fly.
Docks, goosefoot, and other weeds .	Bean aphid.
Many weeds . . . . .	Stem eelworm (not an insect).
	White root-rot.
	Sclerotium disease.
	Violet root-rot.

## WEED "HOST."

## INSECT OR FUNGUS HARBOURED.

Various wild grasses . . . . .	{ Frit fly.
Wild barley . . . . .	{ Ergot of rye.
Barberry . . . . .	Blindness in barley and oats.
Hawkweed . . . . .	Rust of wheat.
Species of <i>Senecio</i> . . . . .	Chrysanthemum rust.
	Pine cluster-cups.

(7) All the foregoing injurious effects of weeds must prove extremely costly in one way or another—by causing direct or indirect loss. In general the cash value of the loss cannot be estimated, but in field cultivation the percentage of loss of crop due to weeds has been calculated in a number of instances, one or two of which may be quoted here.

In experiments with mangolds at University College Farm, Reading, in 1907 and 1908, "no weeding" (after singling) and "hand weeding" compared in yield as 100 to 240, the yields being as follows: No weeding (after singling), 16½ tons per acre; hand weeding, 39 tons; two hoeings only, 37½ tons; one hoeing only, 31 tons. (In every case the figures are the two-year average.) One hoeing, therefore, nearly doubled the crop, and a second hoeing added a further 6½ tons per acre to the yield!

Writing of field experiments in the 'Journal of the Board of Agriculture' in 1904, Professor Percival stated that "in many cases the moderately weeded areas carried from 40 to 50 per cent more crop than those on which the weeds were unchecked."

Experiments conducted by Korsmo in Norway some years ago showed that the cash loss due to weeds is very serious. A "clean" plot of barley yielded 18 cwt. of grain and 30 cwt. of straw per acre, while a "weedy" plot yielded only 6·6 cwt. of grain and 32·8 cwt. of "straw," of which 13·8 cwt. consisted of weeds. In the case of "clean" land, potatoes yielded 175 cwt. per acre, while on "weedy" land the yield was reduced to 90 cwt. The loss in money value on the weedy compared with the clean plot was 46 per cent in the case of barley and 49 per cent in the case of potatoes.

The annual loss of crops due to weeds in Bavaria has been put by Wollny at 30 per cent. In Germany the loss of oats due to charlock has been found to be considerable, Schultz quoting two cases in which crops containing much charlock yielded 45 bushels and 24·8 bushels per acre respectively, while plots kept free from charlock yielded 67 bushels and 76·5 bushels per acre respectively,—the foul crops causing losses of 33 per cent and 67·5 per cent. We see, therefore, that the practical side to the weed question is worthy of every consideration.

*Distribution of Weeds.*

The means by which weeds are distributed have an important bearing on the principles underlying their eradication or the prevention of their entry to the farm, both of these tasks being of considerable difficulty in themselves.

Weeds are annual, biennial, or perennial, while occasionally a species may be annual *or* biennial. The two first types produce an abundance of seed, as will be shown below, while perennials are often propagated both by seed and by creeping root-stocks. Some annuals produce several generations in a year, and are termed *ephemerals* (groundsel and chickweed).

Weeds are spread in a multitude of ways, but the chief means are—(1) by natural seeding and natural agencies; (2) by the inclusion of weed-seeds in agricultural seeds; (3) by weed-seeds in dung, road-scrappings, hay-loft sweepings, feeding-stuffs, and by broken rootstocks of such weeds as couch, and the like.

(1) Seeds produced by weeds are scattered naturally in a variety of ways. Vast quantities of seeds are produced by some weeds (see p. 51), and of these seeds many bear a special apparatus for securing distribution. Many, for example, bear flight-organs or "wings," converting each seed into an ostensible flying-machine, by which it is wafted away on the breeze—*e.g.*, thistles, dandelion, groundsel, hawkweeds, dock, yellow rattle. In other cases (as in burdock and cleavers) the weeds bear hooks, by which they cling to passing animals and man, by which means they are carried away and rubbed off in a new position. Yet other seeds are so light (poppy, broom-rape) that they are readily blown away by the wind, which, indeed, is responsible for the broad-cast distribution of many species of plants. Some seed-vessels, too, are constructed in such a way that on ripening they split and throw their contents with some force from the parent plant. Animals, birds, floods, rivers, and streams serve in various ways to scatter seeds or portions of weeds which may set up a new centre of infestation.

(2) Impure agricultural seeds are responsible for a great deal of trouble with weeds, upwards of fifty species of weed seeds commonly occurring, for example, in samples of clover seeds, and nearly as many in grass-seed samples, though many more species are liable to occur in such seeds. The greatest care should be taken to guard against the introduction of weeds in this way.

(3) Farmyard manure is frequently impure, and if taken to the field before thoroughly rotted may introduce large numbers of weeds. In hay, grain, and other feeding-stuffs, straw

and fodder crops generally, weed-seeds and root-stocks may occur in plenty, and much of such material finds its way to the dungheap unharmed as regards propagative capacity.

Road-scrappings, too, contain many weed-seeds and portions of weeds, and may be the means of freshly contaminating arable and grass land alike, causing serious damage.

Hay-loft sweepings should in particular never be used for seeding purposes, for they almost invariably represent a hotbed of harmful seeds. Some one hundred and fifty years ago the old writer Stillingfleet said: "If a farmer wants to lay down his land to grass, what does he do? He either takes his seeds indiscriminately from his own foul hay-ricks or sends to his neighbour for a supply of all sorts of rubbish. Arguments in support of ancient custom are never wanted. Some say that if you manure your ground properly, good grasses will come of themselves. So they will; but how long may it be, and why be at the expense of sowing what you must afterwards kill by manuring, as is the case with seeds from the hay-loft?" We have progressed since those days, it is true, and such an indictment of farmers has lost much of its point; but the fact that hay-loft sweepings are too foul for seeding purposes is still true.

✓ Feeding-stuffs frequently contain weed-seeds, and many of these pass through the digestive track of stock unharmed and ready to germinate at the first opportunity. Even dodder seeds have been distributed by live stock through the medium of cakes.

Broken portions of many weeds—*e.g.*, couch, creeping thistle, bindweed—may easily be carried on implements from one field to another (or even on muddy boots!); while thrashing machines may serve to carry weed-seeds from farm to farm.

### *Seeds produced by Weeds.*

As already stated, weeds in many cases produce enormous quantities of seeds in order to ensure a sufficient number of progeny. The numbers of seeds produced by certain weeds are given below:—

Weed.	No. of Seeds.	Weed.	No. of Seeds.
Charlock . . . . .	1,192-4,000	Corn marigold . . . . .	13,500
Shepherd's purse . . . . .	4,500	Burdock . . . . .	24,520
Cleavers . . . . .	1,100	Wild carrot . . . . .	1,200-110,000
Chickweed . . . . .	500	Fool's parsley . . . . .	600-8,000
Groundsel . . . . .	300-20,000	Poppy . . . . .	50,000-60,000
Dandelion . . . . .	3,153-5,400	Broomrape . . . . .	Many thousands
Ox-eye daisy . . . . .	1,300-26,000	Ribwort plantain . . . . .	2,500-16,000
Scentless mayweed . . . . .	34,478-310,000	Field bindweed . . . . .	600
Coltsfoot . . . . .	5,000	Goosefoot . . . . .	2,128

The figures quoted are all authoritative, though from various sources, and serve to show the prodigious number of seeds produced by some weeds. Recognising the facts, one need no longer be surprised at the rapid increase of weeds on neglected farms.

### *Vitality of Seeds.*

Not only are weeds prolific, but in many cases their seeds possess very considerable vitality, retaining their power of germination for some years. An example commonly quoted is charlock, the seeds of which have been shown by Professor Peter of Göttingen to retain their germinative capacity for forty years, especially when they lie at considerable depths in the soil.

The number of weed-seeds often present in an ordinary soil is astonishing. In May 1909 the writer measured off a square yard of a good garden soil and removed all seedlings by hand, counting them and dividing them roughly into species. The total amounted to 1050 (or 5,082,000 per acre), among them being 654 buttercup seedlings, 107 of annual meadow-grass, 60 of dock, 26 of goosefoot, 25 of groundsel, 15 of shepherd's purse, 14 of annual sow thistle, and 10 chickweed, besides 139 of other species. Korsmo's investigations revealed the presence of even larger numbers of seeds having the power of germination, the seeds per square yard to a depth of 9·8 inches being as follows: Fallow field, 8682 weed-seeds (=over 42 millions per acre); Field for spring grain, bearing the same crop for four successive years, 28,213 weed-seeds (=over 136 millions per acre); Fallow field, 1474 weed-seeds (=over 7 millions per acre).

### *General Means of Weed Eradication.*

In the eradication of any particular species of weed its individuality or special character must be considered, for only by such means is successful war likely to be waged. It is useless to attempt the eradication of charlock, for example, in the same way as coltsfoot. Yet there are a certain number of means by which most weeds may be prevented from securing a footing, and still others by which weeds generally—as a body—may be combated. These points may be touched on here.

### *Preventive Measures.*

Among methods by which weeds may be prevented are: (1) thorough cultivation; (2) prevention of seeding; (3) the sowing of pure seeds; (4) judicious rotation of crops; (5) growth of dense, heavy "smother" crops; (6) attention to thrashing and

winnowing machines and the proper destruction of refuse seeds, &c. ; (7) thorough cleaning of ditches and brushing of hedges.

As regards (1), it is clear that only by thorough cultivation can weeds be kept from spreading, and such cultivation, to be successful, must be general and continuous. In summer various cultivations expose roots to the drying influence of sun and wind, at the same time destroying seedlings, and in autumn exposure to early frosts is also effective, while at that time too many "root weeds" are gathered together and burned.

(2) It will suffice to emphasise the importance of the prevention of seeding by a reference to the table on page 51, showing the number of seeds produced by various weeds. All weeds should therefore be cut down before the seeding stage is reached. It may be remarked that a valuable means of preventing the distribution of weed-seeds in the harvest field consists in a box attachment for the pan of the reaper, where the reaper is used, while other attachments have been designed in Germany for use on binders, the object being to catch and destroy the seeds which are shaken out in the process of cutting cereal crops.

In an experiment at Leipzig at the harvesting of wheat and oats, the apparatus collected 31 lb. of pure weed-seeds per acre from the wheat crop and 36 lb. per acre from the oat crop, besides an even larger quantity of unripe pods, chaff, &c.

The sowing of pure seeds (3) is obviously a most necessary article of faith on the farm, for it is a sign of unwisdom to go to all sorts of trouble to eradicate weeds if their seeds are yearly introduced with the seeds which are sown. Farmers should insist on a guarantee of purity and high germinating power in the seeds they buy, and only deal with firms who are willing to give such a guarantee.

(4) The rotation of crops followed is a valuable factor in determining the extent of weed infestation, and where weeds are at the outset very prolific it will often be a wise plan to take two hoed crops in succession.

(5) Many weeds may be suppressed or "prevented" by the growth of "smother" crops, such as heavy dense crops of vetches, buckwheat, rye, lucerne, sainfoin, and maize, the last-named being valuable in the southern counties of England because it is a well-hoed crop and casts a dense shade as soon as fairly grown.

(6) Whenever a thrashing-machine is expected on the farm care should be taken to insist that it be thoroughly cleaned before entry. All refuse screenings containing weed-seeds should be thoroughly steamed or ground up before being given to live stock, not only because many may otherwise be scattered about the farm—*e.g.*, in dung—but because many seeds pass unharmed through the digestive system of live stock. As showing

that grinding may be effective, Korsmo found that in  $3\frac{1}{2}$  oz. of ground mill screenings (containing 25 to 47 per cent of weed-seeds) there was only one weed-seed capable of growing.

Lastly, (7) emphasis should be laid on the importance of keeping hedges and ditches clean and free from weed growth, as it is in such positions that harmful weeds may often find a starting-place to cause wide infestation. A similar remark applies to "waste spots" on the farm.

### *Remedial Measures.*

The general remedial measures which may usefully be practised in the endeavour to extirpate weeds are: (a) various tillage operations; (b) mowing, spudding, hand-pulling, &c.; (c) fallowing and fallow crops; (d) various types of manuring; (e) a variety of more specialised means.

(a) Tillage operations refer to ploughing to cut off and bury weeds; hoeing and harrowing to loosen weeds from the soil and allow them to dry and die; scarifying to loosen root weeds like couch and enable them to be collected together and burned; surface cultivation in spring with fine-tined weed-destroyers by which seedlings are loosened and killed in fine weather (fig. 10); and similar methods.

(b) Under this head may be classed thistle and bracken cutters, spuds, hand hoes (ordinary, triangular, and Dutch), sickle, weed grubs, mattocks, and hand-pulling.

(c) Bare fallowing is often a useful means of destroying perennial weeds, especially on heavy land which needs the general improvement that repeated cultivation offers. On lighter soils a fallow or catch crop may properly replace bare fallowing, which is rightly not practised to the extent it used to be. Rape, mustard, and other crops grow quickly and produce heavy crops, which tend to smother out weeds.

(d) Well-manured soil, well tilled, largely enables the crop to hold its own against weeds, and Heinrich's experiments, as recorded by Nobbe as long ago as 1876, showed that mineral manures tend to reduce weeds and nitrogenous manures favour them, while the percentage of weeds in the crop on unmanured land was much higher than with manures. Grass land may be quickly improved by judicious manuring, as every practical farmer well knows. The effect of liming, too, is often very striking; and on some soils certain weeds may be suppressed by the use of lime. "Lawn sands" are effective in improving lawns, and this is doubtless due to the fact that they contain sulphate of ammonia.

(e) In pastures many weeds which cattle would not touch are eaten by sheep—*e.g.*, knapweed, ragwort; and on arable

land such a weed as spurrey, which grows in such profusion on many light sandy soils, may form a useful feed for sheep where it occurs, while folding sheep on fodder crops is a valuable means of reducing weeds.

Draining is often absolutely necessary before land can be so improved that certain weeds will not flourish: sedges, rushes, sheep's sorrel, horsetails, and mosses usually occur where the land is wet or damp.

Observations made by Buckman upwards of fifty years ago at Cirencester showed that irrigation of a meadow for four years resulted in the disappearance of quaking grass, hassock grass, broad-leaved plantain, and bulbous buttercup, while ribwort plantain was much reduced. The improvement in the herbage generally was so marked that Buckman said the field "was trebled in value in four years." It has been stated that bracken may be reduced by irrigation, but the method appears to have failed in some cases.

Where certain perennial weeds—*e.g.*, couch, creeping thistle, perennial sow thistle, stinging nettle, field bindweed—occur in rather small patches, they may be combated by a plan much advocated in the United States, by covering the patches with large sheets of a coarse, strong, tarred paper which successfully excludes light. The paper should be strongly pegged down, and be weighted with bricks or a few heavy stones.

*Spraying.*—The destruction of weeds by spraying is the last special plan we may mention: it is deserving of more attention than it generally receives. As is well known, charlock and runch have long been combated by spraying with a solution of the sulphates of copper or iron (p. 59). A number of other weeds, however, may also be destroyed or seriously crippled by spraying. Many experiments have been conducted in Great Britain, the United States, Canada, Germany, and elsewhere, and the following weeds may be destroyed by a 3 to 5 per cent solution of copper sulphate (98 per cent pure)—charlock, runch, redshank or persicaria, and spurrey. Further, 2 to 5 per cent solutions of copper sulphate (40 to 50 gallons per acre), or a 15 per cent solution of iron sulphate (40 to 70 gallons per acre) may be employed with some effect against poppy, groundsel, dandelion, perennial sow thistle, corn cockle, cornflower, black bindweed, dodder, coltsfoot, and thistles, seeding at least being largely prevented. It would appear that a 4 per cent solution of pure copper sulphate may safely be used to destroy weeds in wheat, oats, barley, "seeds" or clovers, beans, peas, tares, mangolds, and sainfoin, though the evidence is a little conflicting. ("The Destruction of Weeds by Chemical Means" was fully discussed by the writer of this paper in the issues of 'Knowledge' for October and November 1910.)



We may now usefully summarise the preventive and remedial means in tabular form, basing the arrangement on that of Messrs M'Alpine and Wright in the 'Transactions' for 1894—

*A. Natural Means.*

1. Destruction by wild animals and birds which eat seeds.
2. Destruction by heat, drought, or frost.

*B. Prevention of Seed-sowing.*

1. By cutting weeds before flowering and seeding.
2. By the use of pure farm seeds.
3. By proper destruction of mill-screenings, refuse from thrashing, loft sweepings, &c.
4. By the use of well-rotted dung, composts, and road scrapings.

*C. Modification of Environment.*

1. Good tillage.
2. Draining—*e.g.*, horsetail, rushes.
3. Growth of dense, heavy "smother" crops.
4. Manuring, especially of grass land.
5. Liming—*e.g.*, sheep's sorrel, spurrey, corn marigold, bracken, mosses.
6. Depasturing with sheep—*e.g.*, ragwort, knapweed, yellow rattle, couch grass.
7. Rotation of crops.
8. Bare fallowing and fallow-crops.
9. Irrigation—*e.g.*, quaking grass, broad-leaved plantain.

*D. Mechanical Destruction.*

1. By thorough tillage.
2. By ploughing under—*e.g.*, annuals and biennials.
3. By cutting off with horse- and hand-hoes.
4. By rolling and harrowing to collect—*e.g.*, couch, bulbous oat-grass.
5. By cutting with mowing machine, scythe, hook, thistle-cutter, and removal with weed grubs.
6. By surface cultivation with "weeder" to destroy seedlings.
7. By hand-pulling in the case of many weeds.
8. By trimming of hedges and ditches.
9. By early leaf-removal—*e.g.*, meadow saffron, coltsfoot.

*E. Spraying.*

### WORST WEEDS OF SCOTLAND.

The prevalence of given species of weeds varies considerably according to soil, locality, and other considerations, hence it is not possible to give a list of *the worst weeds* which shall apply absolutely to every district in Scotland. According, however,

to statements kindly made to the writer by four expert Scottish agriculturists as to the six worst weeds of arable and grass land respectively, the following weeds may be taken as representative of Scotland's worst weeds:—

*Arable Land*.—Charlock, runch, chickweed, spurrey, docks, thistles, groundsel, coltsfoot, day nettle, red-shank, annual meadow-grass, bulbous oat-grass (pearl-grass), couch-grass, fine bent-grass or black couch, wild oats.

*Grass Land*.—Buttercups, self-heal, docks, ragwort, daisy, thistles, ribwort plantain, creeping soft-grass, common bent-grass, Yorkshire fog or woolly soft-grass, moss.

There are, however, many other weeds which are serious pests of Scottish agriculture, and some of these, together with those named immediately above, may now be described.

#### WEEDS OF ARABLE LAND.

*Buttercup*.—The creeping buttercup (*Ranunculus repens* L.) is certainly one of the worst weeds of arable land, and often occurs in enormous quantity (as already stated, p. 52, 654 seedlings were found in a square yard of garden soil). It is readily recognised by the fact that, as its name implies, it bears runners, these rooting at the nodes and quickly covering the soil in a close network. It must be combated by frequent and vigorous cultivation, together with collection and burning of the plants. Two root crops in succession with the accompanying thorough tillage and hoeing will go far to reduce it, and during the summer months hand-hoeing on hot days will destroy the seedlings (fig. 9) in thousands.

*Poppies*.—The poppies (*Papaver* sp.) are extremely troublesome in some districts, the two commoner species (*P. Rhæas* and *P. dubium*) being most common on light, dry, sandy soils. The seed appears to germinate most freely during damp, warm weather in spring, on soil in good tilth, the hot weather of summer being suitable for the rapid growth of established plants. The seeds are possessed of considerable vitality, and may remain in the soil for some years, and hence it is important to prevent seeding.

Poppies may be combated by the use of pure seeds for sowing; shallow ploughing and surface cultivation in spring to encourage the seeds to germinate, with the subsequent use of light harrows, weeders, and poppy killer (fig. 10) to destroy the seedlings; two root crops in succession where the poppies are exceptionally plentiful; spraying well-grown poppies in grain crops with a 3 per cent solution of copper sulphate or a 15 per cent solution of sulphate of iron—40 gallons per acre.

*Fumitory*.—A common and somewhat prostrate annual of

corn-fields on light, sandy, and loamy soils is common fumitory (*Fumaria officinalis*). It is often very plentiful, and does con-



[Photo, 1909.

H. C. Long.]

Fig. 9.—Seedlings of Creeping Buttercup (*Ranunculus repens* L.)

siderable harm. The leaves are much divided, and the flowers are in long clusters (racemes), pale rose-purple, and open in May to September. Persistent hoeing and surface cultivation in spring and summer must be practised against this weed.

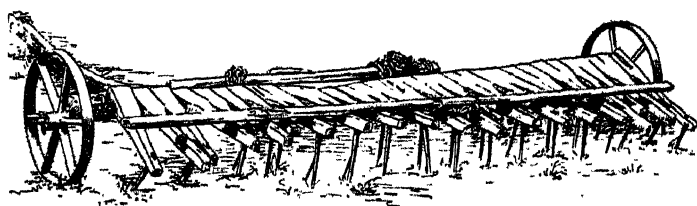


Fig. 10.—Poppy-killer, used for light surface cultivation. (After a photograph published by the Board of Agriculture and Fisheries.)

*Charlock and Runch*.—These two weeds are most certainly among the first half-dozen worst pests of arable land. Charlock (*Sinapis arvensis*) is well known to most farmers, the yellow cruciform but loose flowers (fig. 11), and the spreading, rough pods, 1 to 2 inches long, distinguishing it from runch (*Raphanus Raphanistrum*), in which the flowers are white or straw-coloured with purplish veins, while the pods are 1 to 3

inches long, and break up into small portions, each containing one seed. The seeds of these plants retain their vitality in the soil for years (see p. 52), and charlock often appears in great quantity when grass land is put under the plough.

Both these weeds may be combated in three ways, the first being the obvious one of using pure seeds. Mechanical destruction may also be practised in various ways—hand-hoeing corn crops; hand-pulling of any tall plants; hand- and horse-hoeing of root and pulse crops; and particularly surface cultivation, to encourage germination of the seeds in spring and summer. Seedlings appear right up to the date of early winter frost, and the hoe must be kept going early and late. As the seeds ripen before or by the time corn crops are cut and are then shed in large quantities, an endeavour should be made to destroy as much seed as possible at this time—(1) by sweeping out carts and waggons in which the seeds may shake out; (2) by the use of a box-attachment to reapers (p. 53); (3) by encouraging seeds to germinate immediately after harvest by the practice of surface-cultivation of the stubble.



Fig. 11.—Charlock (*Sinapis arvensis* L.),  $\times \frac{1}{2}$ .

Thirdly, charlock and runch may be destroyed by spraying with copper sulphate or iron sulphate solutions when the young plants are not over 3 inches high or are just in the rough leaf. Forty gallons per acre may be applied, using 8, 12, or 16 lb. of copper sulphate, or 60 lb. of sulphate of iron. Soft water should be used if possible, and in the case of copper sulphate (98 per cent pure) wooden vessels should be used for mixing. The spraying, if properly applied on a calm day in fine weather, will destroy the charlock without permanent damage to the cereal crop or to young "seeds" or clover.

*Shepherd's Purse*.—This weed (*Capsella Bursa-Pastoris*) is

often very troublesome, varies much in size, seeds freely during most months of the year, and gives rise to young plants in rapid succession. The flowers are cruciform, small, white, and give place to somewhat triangular compressed pods resembling a shepherd's "sporrán." It may be found almost all the year round, and is specially liable to act as a host for the white rust (*Cystopus candidus*) of cabbages and related cultivated plants. Shepherd's purse is an annual, and may best be combated by hoeing and surface-tillage generally.

*Corn Cockle*.—This is a too common weed of cornfields, though a handsome one. It is 3 to 4 feet high, covered with long whitish hairs, has lanceolate leaves placed opposite one another in pairs, and beautiful purplish flowers which spring singly from the axils of the leaves, opening from June to August. Corn cockle (*Agrostemma Githago*) is not only a weed in the ordinary sense, but its seeds may discolour flour when ground up with wheat, while the evidence is more than sufficient to show that the seeds may be fatal if ingested in sufficient quantity by farm animals and man, though the effects appear to be variable. To combat this weed pure seed-grain should be employed, and plants may be hand-pulled before seeding, or in some cases cereal crops may need to be hand-hoed.

*Chickweed*.—This little plant is well known as a prostrate annual weed, which may in an incredibly short time cover the soil in a mantle of green. It is much branched, with ovate leaves, and numerous small white flowers in lax clusters. Large quantities of seeds are produced, and the weed is especially prolific on well-tilled rich soils, when some plants cover quite a considerable area. Seedling crops may quickly be smothered by it, and potato crops are often overrun. It must be combated by continued hoeing and harrowing in hot dry weather; by surface-cultivation to encourage the seeds to germinate; and when ploughing land carrying much of the weed, the skim-coulter should be used. In damp weather small areas may usefully be hoed and the detached weeds raked off.

*Spurrey*.—One of the worst weeds of light, sandy, arable farms is spurrey (*Spergula arvensis*), a rather sticky, branched annual, having fine awl-shaped leaves in whorls round the joints, and loose terminal clusters of small white flowers. It produces large quantities of seeds, and grows rapidly, invading both corn and root crops, and often practically suppressing seedling turnips, carrots, and similar crops. M'Alpine and Wright say that "it never does any injury to corn after lea, but corn after root crop is sometimes completely destroyed by it, and the grazing grasses and clovers sown with the corn may be entirely smothered."

√ Spurrey may be combated by vigorous and repeated hoeing

of one or more root crops; surface cultivations and repeated harrowings in spring, with the sowing of late turnips; *applications of lime*; and spraying with fifty gallons per acre of a 5 per cent solution of copper sulphate (in Bangor experiments the weed was in 1906 completely destroyed by this method). Feeding off with sheep is also useful, as the weed is a good fodder and is eaten down closely; but this should take place before seeding occurs. On the Continent spurrey is often grown as a fodder. Wolff states that when green it contains 6.5 per cent of digestible nitrogen-free extract, 0.3 per cent of digestible fat, and 1.5 per cent of albuminoids and amides



[Photo, 1900.

H. C. Long.]

Fig. 12.—Silver-weed (*Potentilla Anserina* L.)

while the hay contains 23.7, 1.9, and 7.6 per cent of these substances respectively.

*Silver-weed*.—A common and easily recognised perennial is that known as silver-weed (*Potentilla Anserina*), also sometimes called goose-grass. It has pinnate leaves (fig. 12), which are glossy, silky, and silver-white, more especially beneath; bright yellow flowers on slender stalks; and it covers the ground rapidly by means of runners. This latter habit makes silver-weed a serious pest of arable land, especially when damp. It is not easily eradicated, as it is readily broken up and the plants grow afresh. Where it occurs it should be given no period of rest, but cultivation and hoeing should be repeated, especially in hot weather, and two root-crops in succession will be useful to this end. Ploughing should be deep and the skim-coulter used.

*Cleavers*.—This is an annual weed well known as goose-grass, hariff, grip-grass, catch-weed, &c., owing to the fact that it is a straggling hook-climber, depending for support on other plants, and produces two-lobed fruits which bear hooks and cling to animals and to man's clothing, so securing distribution. The stems are four-angled with short hooked hairs; the narrow, somewhat lance-shaped, leaves are in whorls of six to eight; and the tiny white flowers appear in small clusters from the leaf axils. The weed is particularly troublesome on light loamy soils among corn crops, which it weighs down and renders difficult to harvest. Pure farm seeds should be ensured; hoeing should be thorough to destroy seedlings, which continue to appear late in summer; and surface cultivation generally should be practised.

*Thistles*.<sup>1</sup>—Among the worst pests of the farm are several species of thistles, but on arable land the worst is undoubtedly the creeping thistle (*Cnicus arvensis*), which is a perennial, and readily distinguished from others by means of the extensively creeping root-system, the branches of which are whitish, slender, and brittle, and from which flowering-stems are regularly sent up. The weed is rapidly spread by seed (which, as in all thistles, is readily distributed by the wind by means of the feathery pappus) and by the creeping roots, and enormous damage may be done by it: there is loss of crop, loss of money and time, and at harvest also loss of patience where thistles are plentiful in corn crops, for this means trouble in cutting, binding, stooking, carting, and thrashing.

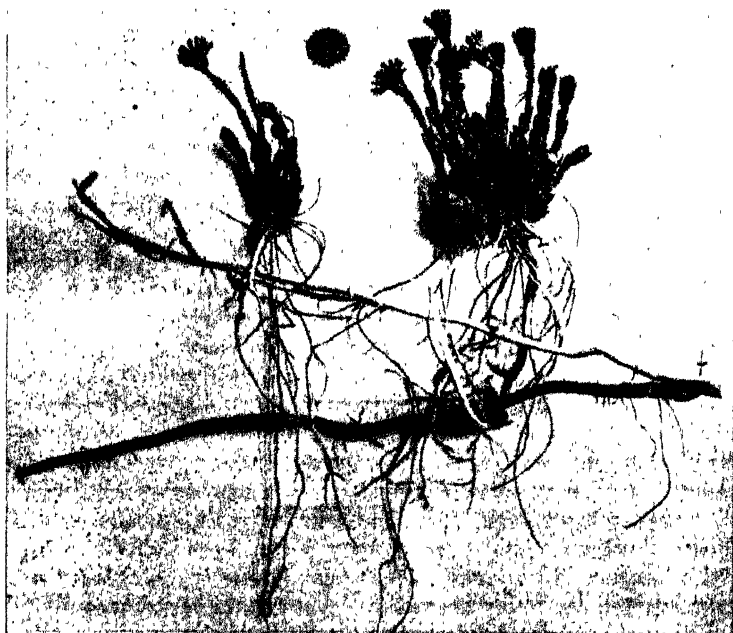
The creeping thistle must be combated in earnest and with method. The creeping roots are readily broken by the plough or other tillage implement, but as they are the vital spot in the plant's economy, it is the roots which must be destroyed. This is perhaps best done by the process of exhaustion, carried out by systematic and thorough cutting off of all shoots that appear, in order to compel the plant to use up the reserves of food in the roots. Two root-crops in succession, with such a system of hoeing, will go far to eradicate this thistle—and with it any other species that may be present. Entry of seed must of course be guarded against, whether in farm seeds or from over the hedge—a neighbour's farm or "waste" ground.

*Sow Thistles*.—There are two species of sow thistles which are often troublesome on arable land—the annual species (*Sonchus oleraceus*) and the perennial or corn sow thistle (*S. arvensis*). The former is an erect tap-rooted plant, with smooth shiny stem exuding a white juice when broken, variable segmented or entire angular leaves, and crowded heads of yellow flowers.

<sup>1</sup> A thorough dissertation on Thistles is issued free by the Board of Agriculture and Fisheries in the form of Leaflet No. 166.

The perennial species is easily distinguished from the annual one by the fact that the flowers are much larger and the root-stock is extensively creeping. Regular hoeing and spring cultivation will serve to reduce the annual species; the perennial species must be combated in the same way as the creeping thistle (*Cnicus arvensis*) dealt with above.

*Coltsfoot*.—This interesting plant (*Tussilago Farfara*) appears



[Photo. 1009.

H. C. Long.]

Fig. 13.—Coltsfoot (*Tussilago Farfara* L.), as seen in March, and showing the extensively creeping rootstock.

to be one of Scotland's worst weed pests. It often occurs plentifully on stiff, wet, or moist soils, particularly when of a calcareous nature. Groups of yellow composite flowers appear from February to April (fig. 13), the stems being thick and very scaly, but leaves do not appear until the plant is about at the seeding stage, when they commence growth, attain a large size, and manufacture food to store in the extensive underground root-stocks for the next year's flower-production. The leaves are large and covered with a dense white down beneath. Colts-foot or foal's-foot is therefore distributed by a mass of creeping root-stocks and by seed. It must be combated in several ways.



The flowers should be cut off as fast as they appear in the months named; the leaves should similarly be removed, and this plan is of the utmost importance, for by this process the root-stocks may be exhausted; draining may be necessary where not already thorough; deep ploughings and cultivations in hot weather; amelioration of the soil with sand, long dung, &c.; and the growth of "smother" crops.

*Groundsel.*—This well-known weed is an annual or *ephemeral*, as many generations are produced in the year, and flowering specimens may be found in almost every month of the year. It produces seed in abundance, and, as growth is rapid, the quantity of the weed present is often astonishing, so much so that young crops may quickly be smothered unless steps be taken. It grows best on rich land, and the seeding stage is quickly reached, the silky ribbed fruits being distributed far and wide by the wind. Groundsel can best be dealt with by plentiful surface cultivation, and the free use of horse and hand hoes.

*Bindweeds.*—Two species of "bindweed" are very harmful on arable land—(1) field bindweed, field convolvulus, or bearbine (*Convolvulus arvensis*); and (2) black bindweed (*Polygonum Convolvulus*), which is related to buckwheat.

The former is an extensively twining perennial, with more or less arrow-head-shaped but variable leaves, beautiful pink or purplish-white funnel-shaped flowers about an inch in diameter, and a slender, brittle, creeping root-stock. As its name implies, it tends to bind together the crops among which it grows, and if plentiful may do great damage by overrunning corn and other crops. This pest may best be combated by the process applicable to the creeping thistle (p. 62), with short rotations and extra root-crops, and enabling cultivations and hoeings to be so thorough that every shoot is cut off as it appears, thus crippling the root-stock. During cultivations the root-stocks may be collected by hand and burnt; while many of them may be dried out in hot summer sun.

Black bindweed (fig. 14) is an annual, often several feet in total length, with somewhat heart- or arrow-shaped leaves, and very small greenish-white flowers in loose clusters. Each flower is on a very short stalk, and the fruit or "seed" is triangular, rough, and black. The weed is similar in climbing and twining habit to the previous species, and is harmful in the same way, except that it is an annual. It may be combated by arranging a short rotation with well-hoed root-crops; by surface cultivation as long as possible in spring; and harrowing of stubble after harvest to encourage the seeds to germinate for destruction; by the use of a seed-catching box on the reaper at harvest-time; and by ensuring the use of pure seeds.



Fig. 14.—Left, Knotweed (*Polygonum Aviculare* L.); right, Black Bindweed (*P. Convolvulus* L.) Both  $\times \frac{1}{2}$ .

*Dodder*.—Several species of dodder occur on cultivated crops, but in general clover dodder (*Ouscuta Trifolii*), which is parasitic on clover and lucerne, is the most troublesome. It is a twining, leafless parasite, with many clusters of minute white flowers.

(fig. 15), and it is attached to its "host" plant by suckers, by means of which it feeds on the juices of the "host." Its entrance to the farm must be prevented by the use of seed guaranteed "free from dodder." When found attacking a crop every effort should be made to eradicate it; this may perhaps best be done by *mowing it with the crop before the dodder seeds, and burning the whole lot on the spot.* If the surface soil of the affected spots can be skimmed over with a plate spade, and be burned out also, so much the better. If the infested crop be ploughed under, care should be taken to ensure that this be

done *before the dodder seeds.* Spraying with a 15 per cent solution of sulphate of iron, so that the fluid hits the ground with some force, has been found to destroy dodder, and though the clover blackens at first, it recovers.

*Plantains.*—Thenarrow-leaved plantain, commonly known as ribwort or rib-grass (*Plantago lanceolata*), and the broad-leaved species (*Plantago major*), are sometimes troublesome on arable land, especially in young "seeds," and care is necessary to ensure that their seeds are not included in clover and grass seeds. In the former species the flowers are in short globose or cylindrical heads, and in the latter in long slender spikes. Both are perennial. In arable land thorough cultivation and hoeing of root-crops is necessary to reduce them.



Fig. 15.—*Clover Dodder* (*Cuscuta Tri-folii* Bab.) on *Red Clover* (*Trifolium pratense*),  $\times \frac{1}{2}$ , with flower enlarged.

*Broom-rape.*—The lesser broom-rape (*Orobanche minor*) is a type of all the other species, and is that which chiefly attacks clover. It is an annual, leafless, but somewhat scaly plant (fig. 16), with flowers about  $\frac{1}{2}$  inch long, which vary much in colour—being brown, violet, reddish-, purplish-, or yellowish-brown. It is parasitic on the roots of clover from the Border counties southwards, and by means of suckers subsists on the food manufactured by the clover for its own use. When the parasite is plentiful the clover crop may be much damaged. Preventive and remedial measures consist in hand-pulling of the broom-rape before seeding takes place (the seeds are pro-

duced in thousands on a single plant, and are so small that it is said ten millions only weigh one gram!); if the weed is plentiful the crop may be cut early in lieu of hand-pulling the parasite; heavy crops of clover and rye-grass help to choke back broom-rape, or clover may be replaced by lucerne or sain-foin.

*Corn or Field Mint.*—On damp soils field mint (*Mentha arvensis*) is very troublesome in some districts. It much resembles ordinary mint, possessing a characteristic minty smell; it is downy, with opposite ovate leaves and dense whorls of small lilac flowers. It must be attacked by draining; by deep ploughing, thorough cultivations and harrowing, with collection of the extensively creeping root-stocks; by a short rotation with increased fallow crops; by "smother" crops; and in some cases paring and burning may be necessary to subdue it.

*Hemp and Dead Nettle.*—Three annual species of these weeds occur in arable land—the hemp or day nettle (*Galeopsis Tetrahit*) on sandy, calcareous, and loamy soils; the red dead-nettle (*Lanium purpureum*) on all soils; and henbit dead-nettle (*L. amplexicaule*) especially on sandy soils. The white dead-nettle (*L. album*) is a perennial with a creeping root-stock. All species must be combated by thorough tillage and hoeing, with surface cultivations to destroy the seeds of the three annuals, and hand-pulling to prevent seeding of older plants.

*Redshank or Persicaria.*—On moist soils in good condition the weed known as redshank (*Polygonum Persicaria*) is often a serious pest, as appears to be the case in the south of Scotland. It is an annual which grows rapidly and luxuriantly, and as seed is produced in large quantity the weed may often form a



Fig. 16.—Broom-rape (*Orobanche minor* Nutt.), nat. size.

dense crop which will almost choke out other plants. It is branched, with shiny stems with swollen nodes, the stems being tinged with red above; the leaves are lanceolate, with



Fig. 17.—*Persicaria* or *Redshank* (*Polygonum Persicaria* L.)

a, Young seedling; b, Seedling more advanced in growth; c and d, Flowering plant; e, Raceme of flowers. All  $\times$  about  $\frac{1}{2}$ .

short stalks, and often a black blotch in the centre; and the flowers are very small, reddish (or white), and in dense clusters  $\frac{1}{2}$  to  $1\frac{1}{2}$  inch long (fig. 17).

The measures to be adopted against this weed consist in surface cultivation and thorough hoeing in the spring and summer; hand-pulling if necessary; and the use of pure seeds.

(As to spraying, see p. 55.) It may be stated that an analysis has shown that the dry matter of redshank contains 3.12 per cent of nitrogen, 1.16 per cent of phosphoric acid, 3.12 per cent of potash, and 4.93 per cent of lime. It is considered a nutritious plant, and has been given as green fodder to cattle and horses.

*Knot-grass or Knot-weed.*—Closely related to the foregoing species is knot-weed (*Polygonum Aviculare*), known also to farmers as surface twitch, red robin, and hogweed (fig. 14). It



[Photo. 1909.]

H. C. Long.]

Fig. 18.—Seedlings of Dock (*Rumex* sp.)

lies close to the ground, which is frequently overrun to such an extent that crops may be smothered. It is much branched at the base; the leaves are lanceolate to oval; and the minute pinkish-white or greenish flowers are placed in the axils of the leaves, and appear from May to October. It occurs on most soils, especially, says Fream, on some of the light sandy soils, and on soils highly manured by sheep.

This weed is an annual, and must therefore be combated by repeated surface cultivation and thorough hoeing of root-crops.

*Docks.*—The two common docks (*Rumex crispus* and *R. obtusifolius*) are readily recognised by farmers, and need not be described. Their large root-stock is a storehouse of food-material, built up during summer for the use of the plant for next

spring. Unfortunately, if the root be cut in pieces, the separate parts are able to produce adventitious buds and give rise to new plants. Mature plants must therefore be removed whole from the field at every convenient time: during tillage operations they must be collected by hand, and when the land is under crop they must be lifted by means of a docking-iron when the soil is soft and damp. *Cutting off is useless* unless very frequently repeated. While full-grown plants possess great vitality, the seedlings (fig. 18) are readily destroyed by



Fig. 19.—Goosefoot, Fat Hen (*Chenopodium album* L.), showing young plant (left) and flowering-stem (right). Both  $\times \frac{1}{2}$ .

hoeing in hot sunny weather in spring and summer, while many seedlings may be prevented from establishing themselves by late hoeing of roots in autumn. Pure seed should always be used.

*Goosefoot.*—This gross feeder and rank grower on good fertile soils is a great trouble, and as it attains a large size, may choke out all kinds of crops. The abundant seed produced may lie dormant and grow at unexpected times. The weed (fig. 19) is an annual, erect, branched, with variable pointed and toothed leaves, and minute greenish flowers in dense clusters; and the whole plant has the appearance of being powdered with a

whitish or pinkish meal, while the seedlings (fig. 20) are silvery-green in hue and "mealy." Surface cultivation in spring, thorough hoeing of root-crops, hand-pulling, and pure seeds are necessary if this weed is to be kept at bay. Several closely related weeds resembling goosefoot may be combated in the same way.

*Grasses*.—Several grasses are very serious pests of arable land, and among them may be mentioned here couch (*Triticum repens*), often known as twitch, whickens, quack-grass; bulbous-



[Photo, 1909.

H. C. Long.]

Fig. 20.—Seedlings of Goosefoot (*Chenopodium album* L.)

oat-grass or pearl-grass (*Arrhenatherum avenaceum* var. *bulbosum*); fine bent-grass (*Agrostis vulgaris*); slender foxtail (*Alopecurus agrestis*); wild oat or havers (*Avena fatua*); and annual meadow-grass (*Poa annua*).

Couch (*T. repens*) is recognised by the extensive creeping root-stocks, white, and about as thick as a stout knitting-needle, and in the flowering stage by the fact that the spikelets are placed flat on the stem as in wheat, not as in rye-grass.

Pearl-grass is readily known by the "tuberous" root-stock, which bears "pearls," "bulbs" or "knots," like large whitish beads.



Fine bent closely resembles fiorin, and has creeping stems which are on or near the surface and distinct from "couch."

These three pests may be dealt with by thorough shallow ploughing and cultivation correlated with hand collection of the dried plants, and in the case of pearl-grass the "bulbous" portions. Care must be taken not to split up the sections of pearl-grass too much, for each "pearl" has the power to form a new plant, and all possible portions should be collected. Every opportunity should be taken to expose all these weeds to hot weather and to frost. On heavy land bare fallowing may be necessary, while "smother" crops are useful in aiding to suppress these weeds. Couch may be effectively eradicated by laying down land to pasture for three or four years. Root-crops must be thoroughly and repeatedly hoed. Fream says that were the hoe kept going in root-crops in the autumn, seedling couch, which becomes established after that time, would have little chance of causing trouble.

Slender foxtail is especially found in cornfields on heavy land, and Fream says that cases are recorded in which fields of wheat have been quite destroyed by it. It is an annual with a spike somewhat resembling ordinary foxtail, but very slender, rough to the touch, and often purplish in colour. It flowers from May to October. In cereals hoeing and hand-pulling are necessary where slender foxtail or hunger-weed occurs, and the succeeding root-crop should be subjected to special hoeings; seeds may be caught at harvest time by the box attachment for reapers; and pure seeds should be ensured.

Wild oat or havers is an annual of cornfields resembling the cultivated oat, but with smooth stem, hairy joints, and spikelets bearing long, stout, twisted, and bent awns. Surface cultivation will encourage seeds in the soil to germinate; root-crops should be carefully cared for to ensure that all wild oats are eradicated; and great care should be taken to ensure pure seed grain.

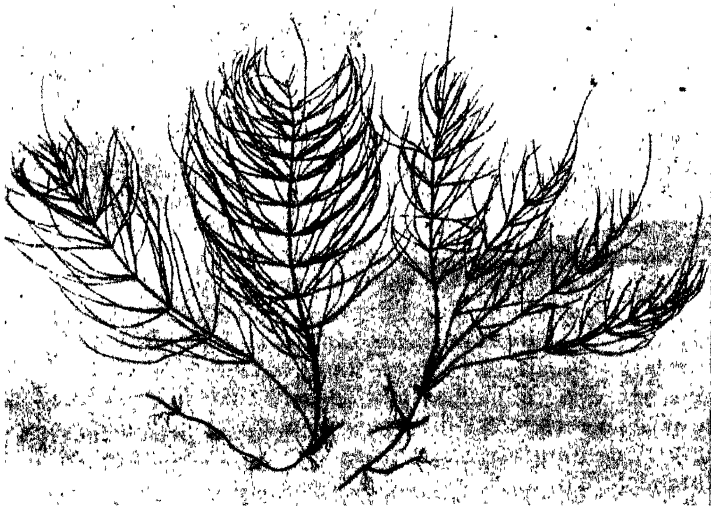
Annual meadow grass is a small grass which is often very plentiful on arable land, and was included by the late Mr John Speir as one of the worst weeds in some districts of south-west Scotland. Surface tillage and thorough hoeing of root-crops will in general keep this weed within bounds.

*Horse-tail*.—The last weed of arable land to be mentioned here is horse-tail or mares-tail (*Equisetum arvense*), which especially occurs on damp undrained land. Spore-bearing stems, with club-shaped heads, appear about April, and are followed from May onwards by barren leafy stems (fig. 21) bearing slender branches in whorls; the leaf-stems are erect or decumbent. The rooting system consists of extensively creeping deep-lying rhizomes. All stems should be cut off as fast as they appear;

deep draining should be carried out; and thorough tillage with well-manured root and smother crops should be practised against horse-tail in arable land.

### WEEDS OF GRASS LAND.

Grass land is too frequently badly infested with weeds—that is, the herbage too commonly consists of poor grasses and plants which are replacing valuable grasses and clovers. This



[Photo, 1909.

J. C. Varty-Smith.]

Fig. 21.—*Horse-tail* (*Equisetum arvense* L.), showing barren stems and creeping rootstock.

fact has been frequently demonstrated by investigation—e.g., by the late Dr Fream, Mr William Carruthers, and Mr S. F. Armstrong. Many weeds of grass land much reduce the value of the herbage, some are directly poisonous to stock, while all replace far more valuable plants. The chief means of improving grass land consist in judicious manuring and liming, judicious grazing with sheep and cattle, regular cutting of certain species, and in some cases draining. The effects of manures are striking, as has been amply shown by the Rothamsted and Newcastle experiments, not to mention others. Farmyard manure should in general be spread on meadows or haying land, as regularly grazed land gets more of this manure owing to the extensive

feeding of stock thereon; cake-feeding of stock and the treading of the latter go far to improve the type of herbage; judicious use of phosphates, often in conjunction with potash, to encourage clovers, is on many soils a necessary item in the improvement of grass land; liming and draining are often vital to the eradication of certain weeds—sheep's sorrel, mosses, horse-tail; while old grass land generally will be the better for an occasional application of 10 cwt. per acre of good ground lime.

A few of the more important weeds of grass land may now be considered.

*Meadow Saffron*.—This handsome plant (*Colchicum autumnale*), with flowers resembling whitish or pale purple crocuses, occurs too frequently in meadows from the north of England to the south coast. The broad, long, lance-shaped leaves, with the seed-vessels, appear in spring, while the flowers appear in succession from August to October (fig. 22). All parts are poisonous, and there are hence two seasons when cattle may be affected in the fields, while the plant is also poisonous when dried in hay. The corms or "bulbs" are too deep-seated to be removed by hand, except with a special tool, and the best remedial measure consists in the removal of the leaves by hand as fast as they appear, treating the flowers in the same way.

*Buttercups*.—Several species of buttercups (*Ranunculus* sp.) occur very plentifully in grass land. They need not severally be described here, but it may be said that in grass land they occupy space which should be given up to better plants, and that they contain an acrid juice which in some species is very poisonous. The toxic principle, however, is volatile, and when dried in hay buttercups are harmless, and readily eaten by stock. The species which grow in damp situations, as by ditches, are the most poisonous, and are different in general appearance from those growing in open pasture. Buttercups are seldom eaten by stock, but may impart a bad flavour to the milk of cows which eat them. Grass land may be improved by careful manuring to encourage a close bottom herbage; in pastures the flowering-stems may be cut with the mower to prevent seeding; the sowing of the seeds in impure grass and clover seeds should be carefully avoided,

*Leguminous Weeds*.—Gorse (*Ulex* sp.), broom (*Cytisus Scoparius*), rest-harrow (*Ononis spinosa*), and dyer's green-weed (*Genista tinctoria*) are leguminous weeds which may be very troublesome. Gorse and broom must be grubbed out, but large plants may be burnt in dry weather and the roots subsequently grubbed out; all seedlings should be hoed out as they appear. Bare patches may then be harrowed and sown with grass seeds.



Fig. 22.—*Meadow Saffron* (*Colchicum autumnale* L.)

1, Flowering corm (late summer and autumn); 2, Leaves and seed-vessel (spring);  
3, Cross-section of seed-vessel. All  $\times \frac{1}{2}$ .

Rest-harrow, which occurs on poor, heavy land (some forms on dry, sandy, and gravelly soils), is a viscid, hairy, shrubby perennial, with narrow-oblong toothed leaflets and rosy pink

vetch-like flowers, and generally spinous. It must be regularly cut, and depasturing and manuring must follow.

Dyer's green-weed usually occurs on poor pastures on heavy



Fig. 23.—*Dyer's Green-weed* (*Genista tinctoria* L.), nat. size.

land. It is a shrubby perennial (fig. 23), with ovate-lanceolate leaves, smooth, spineless branches, and yellow flowers in longish racemes. It may be combated by regular cutting before seeding, and on heavy land by a dressing of 6 to 10 cwt. of basic slag.

*Wild Carrot.*—This weed (*Daucus Carota*) occurs in both arable and grass land, chiefly dry loamy and calcareous pastures. It is an annual or biennial, has much cut or pinnate leaves, a tough tap-root, and small whitish to reddish purple flowers in umbels. The smell and flavour of the plant resemble those of the cultivated carrot. The weed must be cut regularly and spudded before flowering; manuring to improve the general herbage must be practised; and pure seeds should always be used. Serious infestation may necessitate ploughing up and general cleaning.

*Burdock.*—This pest (*Arctium Lappa*) is a biennial readily recognised by its large, heart-shaped, pointed leaves, cottony beneath, and stiff, spiny, hooked heads of flowers. It must be attacked by regular cutting to prevent seeding, and the seedling plants should also be spudded out well below the crown.

*Knapweed.*—A weed (fig. 24) which is often a nuisance, and an unsightly one, is known as knapweed or hardheads (*Centaurea nigra*). It occurs especially on poor clays, loams, and calcareous soils; it is perennial; and, being hard and tough, is rejected by stock in the full-grown state, though readily eaten when young by cattle and sheep. The general herbage should be improved by manuring; depasturing with sheep is likely to prove useful; early cutting and hand-pulling may also be brought to bear on it.

*Thistles.*—The worst species of thistles generally prevalent in grass land are the creeping thistle (*Cnicus arvensis*), dealt with at p. 62, and the stemless thistle (*C. acutis*), both of which are perennial and possessed of a creeping root-stock; and the spear thistle (*C. lanceolatus*), the marsh thistle (*C. palustris*), and cotton thistle (*Onopordon Acanthium*), these three being biennial. The first two are distinguished from the other three by the creeping root-system, and from one another by the fact that the stemless thistle has heads and flowers almost sessile at the surface of the ground. These two species must be combated by regular and repeated spudding or cutting to exhaust the stores of food in the root-system—but the repeated cutting will need to be faithfully carried out from early spring to late summer for two years.

The three biennial species can be eradicated by regular spudding and cutting to prevent seeding, and the seedlings which appear in autumn and early spring must be thoroughly cut out of the soil to ensure their destruction.

*Coltsfoot* has already been described (p. 63). In grass land, cutting of flowering-stems, and subsequently the leaves, together with draining and manuring, especially with nitrogenous manures, are the measures to be adopted against colts-foot.

*Daisy*.—This little plant (*Bellis perennis*) is known to all, but is considered a serious weed on account of the rosettes of leaves occupying so much of the ground at the expense of



[Photo. 1909.

H. C. Long.]

Fig. 24.—*Knapweed, Hardheads* (*Centaurea nigra* L.)

better herbage. Judicious manuring to encourage taller and better herbage grasses and clovers must be practised.

*Ox-Eye Daisy*.—The “dog daisy” or ox-eye (*Chrysanthemum Leucanthemum*) is also well known, and needs no description here. It is most common on poor clays and calcareous loams. Improvement of the condition of the land by manuring results in a diminution of this weed; early cutting may prevent

seeding; the use of salt has been recommended in the United States.

*Ragwort*. — Another composite weed, ragwort or ragweed (*Senecio Jacobaea*), is a tall, handsome plant, 2 to 4 feet high, with irregularly cut foliage and dense clusters of golden yellow flower-heads resembling yellow daisies. Sheep eat it greedily in the young state, and the plan of depasturing with sheep in spring and early summer appears to be the best known method of reducing it. The plants may also be hand-pulled when the ground is soft after rain.

*Plantains*. — All kinds of plantains (*Plantago* sp.) in grass land are perennial, and occur on nearly all soils. The best plan is to spud them regularly or remove them with the docking-iron, and encourage thick bottom herbage by careful manurial treatment.

*Yellow Rattle*. — This weed (*Rhinanthus Crista-galli*) is a semi-parasite on the roots of grasses and other herbage, and often occurs plentifully in poor damp meadows and pastures.

It is peculiar in appearance, and is variously known as rattle, rattle-grass, horse-penny, and cock's-comb. The flowers (Fig. 25) are yellow, with the lobes of the upper lip blue, and are arranged in loose spikes; the seed capsules are round and flatish, and the ripe seeds "rattle" in the capsule when blown or



Fig. 25. — Yellow Rattle (*Rhinanthus Crista-galli* L.), nat. size.



shaken by the wind; the leaves are narrow, serrated, and placed opposite in pairs. This weed is an annual, and may best be combated by early mowing for two or three years following to prevent seeding; by depasturing with sheep in spring; by manurial treatment to improve the general herbage; and by an application of 6 cwt. of salt per acre about the end of April.

*Self-heal.*—This troublesome weed (*Prunella vulgaris*) is only 6 to 12 inches high, is rather hairy, has oblong opposite leaves, small reddish-purple two-lipped flowers in dense terminal whorls (fig. 26), and a creeping root-stock. It indicates poor, sterile, damp land, and is known in Scotland as "blaw-weary." Manurial treatment, with liming, and close grazing with sheep getting cake, are perhaps the best means of combating it.



Fig. 26.—*Self-heal* (*Prunella vulgaris* L.),  $\times \frac{2}{3}$ .

*Docks.*—Whenever they occur in grass land, docks should be regularly removed during damp weather, when the ground is soft, by means of the docking-iron. Repeated spudding may also exhaust them; and a pinch of sulphate of ammonia placed on the cut surface has been found to destroy the root. Pure clover and grass seeds should always be used.

*Sorrel.*—Two species of sorrel are common to grass land—common sorrel (*Rumex Acetosa*) and sheep's sorrel (*R. Acetosella*). The latter has a creeping root-stock, and is occasionally a bad weed of arable land. These weeds are well known, are very troublesome on poor dry pas-

tures, and are held to be a sign of sour land needing lime. Wherever they occur manurial treatment should be resorted to, phosphates and lime being particularly beneficial.

*Stinging Nettle.*—A weed which is often very troublesome in grass land is the great stinging nettle (*Urtica dioica*). It may be combated by regular cutting from early spring onward, cutting taking place every time the new shoots attain a few inches in height. By this process the creeping root-stocks are exhausted. A dressing of salt at the rate of 5 cwt. per acre will materially aid in its eradication. A German experiment showed that stinging nettles were largely destroyed by an application of a 15 per cent solution of kainit, an ordinary charlock sprayer being used. The solution was applied in

spring to the young shoots, and the grasses were enabled to obtain the mastery.

*Grasses*.—A very large number of grasses are poor in quality, and must be considered weeds of grass land. Of these may be mentioned here bent-grasses (*Agrostis* sp.), hassock grass (*Aira cæspitosa*), Yorkshire fog (*Holcus lanatus*), creeping soft-grass (*Holcus mollis*), quaking grass (*Briza media*), soft brome grass (*Bromus mollis*), and barley grass (*Hordeum pratense*). Space forbids a full discussion of these grasses, but a few facts may be noted.

The bent grasses (fig. 27) are very variable perennials, and their stoloniferous character renders them very troublesome. The common species or "black couch" is particularly a pest. *Agrostis* can only be reduced by judicious manuring, good management, and the use of lime.

Hassock grass grows in dense tufts or hummocks, sometimes known as "bull faces" or "bull pates," and is seldom touched by stock owing to its rough sharp leaves and stout stems. This grass is perennial, and must be combated by thorough draining, manurial treatment, and the use of lime, while the hummocks must be chopped out, and all new plants removed as fast as they appear.

Yorkshire fog (fig. 28) is a densely-tufted and widely-distributed perennial, freely reproduced by seed, is rough and hairy, and refused by stock, and may invade large areas of grass land, particularly perhaps on calcareous loams. Preventive and remedial measures consist in preventing its introduction in impure seeds, preventing seeding by running the mower over

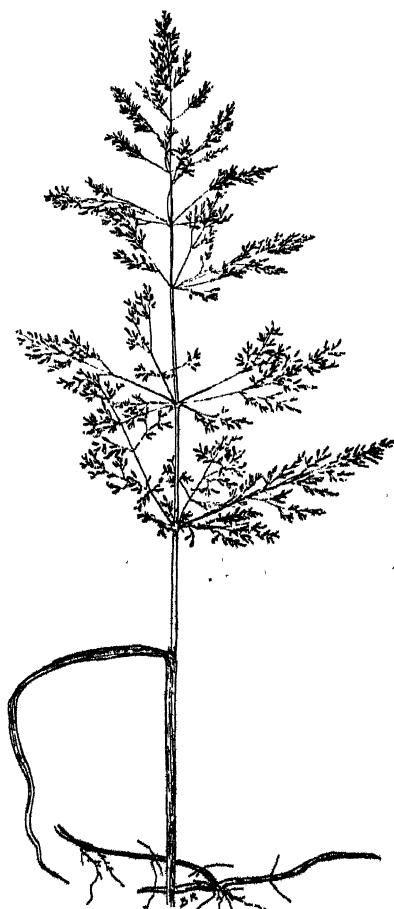
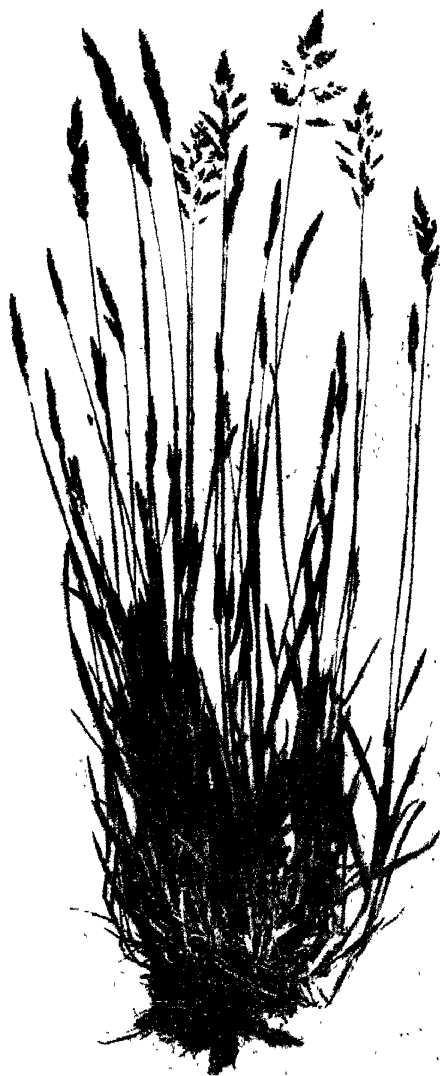


Fig. 27.—Marsh Bent-grass (*Agrostis alba* L.),  $\times \frac{1}{2}$



[Photo. 1909.]

J. C. Varty-Smith.]

Fig. 28.—Yorkshire Fog (*Holcus lanatus* L.)

the land in June with the knives set high to cut off the flowering-spikes, and judicious manuring. On damp soil the grass is said to be less hairy and readily eaten by cattle, and that in Norfolk and Holland some good pastures consist largely of Yorkshire fog.

Creeping soft grass (*Holcus mollis*) is closely related to Yorkshire fog, which it much resembles, but is less hairy and has an extensively creeping root - stock. On poor sandy soils it sometimes occurs in open pastures. Sound treatment of pastures as regards grazing and manuring will be most effective against this weed grass.

Quaking grass is well known to all, and is a typical weed grass of poor pastures and meadows on light dry soils. The only measure appears to be to resort to thorough and consistent manuring.

Soft brome grass is an annual or biennial, often plentiful in meadows and leys and in water meadows. It is useless to stock. The seeds are shed in the

hayfield by June, and hence only very early cutting for two or three years will prevent its continuance.

Barley grass, a perennial with creeping root-stock, and closely resembling ordinary barley, but only 1 to 2 feet high, occurs in damp meadows and pastures. In quantity it is injurious, the rough spikes being harmful to stock. Mowing and manuring must be practised against it.

*Bracken*.—In Scotland bracken (*Pteris aquilina*) is as elsewhere often a great trouble. Regular use of chain-harrows to break off fronds as fast as they appear; repeated cutting or beating down with sticks; close grazing with cattle, which both eat it and keep it trampled, while they generally improve the soil; the use of one to two tons of lime per acre; or cultivating the land for two or three years,—all these methods may be usefully employed against bracken.

*Horse-tail*.—This weed, described at p. 73, must in grass land be regularly cut (both spore-bearing and barren stems), while draining and liming must be practised, as it chiefly favours damp soils.

*Mosses*.—A number of species of moss are often very harmful on damp pastures in poor condition, and indeed grass land may be ruined by their presence. The methods to be put in force against moss may be said to be—(a) drainage; (b) thorough harrowing to tear out the moss as much as possible, with frequent rolling on thin light soils; (c) manurial treatment to feed the general herbage; and (d) the use of 10 cwt. of lime per acre in autumn.

*Poisonous Plants*.—Though we cannot here deal fully with poisonous weeds, it may serve a useful purpose to mention a few of the more common species harmful to farm live-stock, and hence the following may be named:—

Buttercups ( <i>Ranunculus</i> sp.)	Deadly nightshade, Dwale ( <i>Atropa</i>
Poppies ( <i>Papaver</i> sp.)	<i>Belladonna</i> ).
Corn Cockle ( <i>Agrostemma Githago</i> ).	Bittersweet ( <i>Solanum Dulcamara</i> ).
Laburnum ( <i>Cytisus Laburnum</i> ).	Foxglove ( <i>Digitalis purpurea</i> ).
Bryony ( <i>Bryonia dioica</i> ).	Dog's Mercury ( <i>Mercurialis perennis</i> ).
Hemlock ( <i>Conium maculatum</i> ).	Box ( <i>Buxus sempervirens</i> ).
Cowbane ( <i>Cicuta virosa</i> ).	Yew ( <i>Taxus baccata</i> ).
Water Dropwort ( <i>Oenanthe crocata</i> ).	Meadow Saffron ( <i>Colchicum officinale</i> ).
Fool's Parsley ( <i>Aethusa Cynapium</i> ).	Darnel ( <i>Lolium temulentum</i> ).

Several of these species have already been dealt with, while it should be stated that many other species of plants are poisonous, and may prove injurious to farm live-stock.

## THE CHEMISTRY OF THE PROTEINS.

By T. B. Wood, M.A., Draper's Professor of Agriculture in the University of Cambridge.

No branch of science among those bearing on Agriculture has undergone greater changes during the last ten years than the science of Physiological Chemistry, especially that part of the subject which deals with the composition of the albuminoids, or proteins as they are now generally called, and their digestion and assimilation.

In the following pages an attempt is made to describe the new point of view of the physiological chemist, and to show how it bears on the practical side of animal nutrition.

The proteins have always attracted the attention of the chemist, and quite naturally, since they form the basis of all living things. It has long been known that substances resembling egg-albumen could be extracted by various means from many animal and vegetable materials. Such substances, for example, are fibrin, to the formation of which the clotting of blood is due; casein, the substance which separates from milk when curdling takes place; gluten, the tenacious substance which remains when the starch is washed away from wheat-flour. These substances all have certain points in common: for instance, they all show approximately the same percentage composition—namely, carbon about 52 per cent, hydrogen about 7 per cent, nitrogen about 16 per cent, oxygen about 24 per cent, and sulphur about 1 per cent. Many of them also contain small quantities of phosphorus, and it is only by special methods of purification that they can be obtained free from potash, lime, and the other common ash constituents of plants and animals. All of them give much the same chemical tests, and all of them are intimately associated with the life of plants or animals.

These facts have long been known, and they naturally led to the view that the proteins formed a group of substances of great chemical similarity.

With regard to their connection with animal nutrition, it has long been recognised that the vital tissues of animals—muscles, nerves, glands—are composed chiefly of protein substances; that these vital tissues are continually subject to wear and tear, for the repair of which the diet of an animal must contain a certain amount of protein substances.

Much careful attention has been devoted to the investigation of this subject, as the result of which it is stated that an average

adult human being requires for tissue repair about  $3\frac{1}{2}$  ounces of protein per diem, a horse about 8 ounces, a bullock about 9 ounces, a sheep about 2 ounces. These amounts refer to adult animals which are neither increasing in weight nor working. For fattening or working animals larger quantities would be required.

Until quite recently, the accepted view as to the digestion of proteins was that they were converted by the ferments of the gastric and pancreatic juices into substances known as peptones. These peptones are in effect still protein in nature. They have about the same percentage composition, and give approximately the same chemical tests, but they differ from the proteins commonly met with in feeding-stuffs in being very soluble in water. Broadly speaking, therefore, digestion was supposed to convert the insoluble proteins of the food into soluble proteins called peptones. These peptones were supposed to be absorbed as such from the small intestine into the blood stream, by which they were distributed to the various tissues, where they were utilised for repair.

According to this view, there was no particular reason why all proteins should not have exactly the same value to the animal. It is noteworthy that whilst no one insisted on this point, every one tacitly assumed it. For instance, in all the books which deal with feeding standards, a certain quantity of protein is stated to be required, with no reservation as to its nature. Again, in all analyses of feeding-stuffs, the percentage of protein is given, without any remarks as to its nature. Both these methods of expression amount practically to the assumption that the feeding value of all proteins is the same.

Although this view of the digestion and assimilation of proteins was commonly accepted, it was by no means regarded as satisfactory. Amongst other obvious shortcomings, it failed to explain many facts well known to practical stock-feeders, who all agree that the form in which they supply the protein necessary to balance their home-grown roots and straw is by no means a matter of indifference.

A series of sheep-feeding experiments carried out by the Norfolk Chamber of Agriculture in the years 1887 to 1894 is much to the point in this connection. The object of the experiments was to find out how best to utilise for sheep-feeding inferior barley which was not good enough for malting. The barley was crushed and given to the sheep in combination with a number of different concentrated feeding-stuffs rich in protein, and the experiments were continued for four seasons. Each time the most economical result was obtained when the barley was mixed with decorticated cotton-cake; and this mixture was found to give even better results than linseed cake which

is the concentrated food most commonly used for sheep in Norfolk.

In a subsequent series of bullock-feeding trials, however, linseed-cake was found to be considerably more economical than decorticated cotton-cake mixed with various barley products.

Such facts as the above—which are typical of many facts well known to stock-breeders—seem to point clearly to the conclusion that certain proteins, and especially certain mixtures of proteins, are especially suitable for certain animals, and consequently that all proteins are not alike; and this conclusion is entirely borne out by the recent discoveries of physiological chemistry.

It has already been stated that all proteins have approximately the same percentage composition. It is well known, however, that percentage composition is no criterion of chemical structure. Just as it is possible to build many different kinds of buildings out of a given number of bricks, so many chemical compounds differing in many important properties can be formed from the same number of chemical atoms. In both cases the properties of the structure, whether a building or a chemical compound, depend rather on the arrangement than on the number of the constituent bricks or atoms. Up to the present no one has succeeded in building up a protein, but it is equally possible to determine the arrangement of the atoms in a chemical compound by breaking it down. During the last ten years this method has thrown a flood of light on the chemical structure of the proteins.

The methods of breaking down the proteins which have been employed are two in number. They have been subjected to the prolonged action of the digestive juices, under conditions imitating as closely as possible those which occur in the stomach or intestines, or they have been boiled for many hours with diluted sulphuric or hydrochloric acid. Under these conditions proteins are split up far beyond the peptone stage into crystalline substances which no longer possess the typical properties of proteins. Two of these crystalline-splitting products have been known for a long time, namely, leucine and tyrosine, and from time to time another has been added to the list. The difficulty lay in separating them from one another in the complicated mixture resulting from prolonged treatment of proteins with digestive juice or boiling acid.

About ten years ago a systematic method of separation was worked out which made it possible not only to separate many new splitting products, but to estimate approximately how much of each was yielded by the digestion of any protein. This method has been applied to many proteins of great agricultural interest, and the results are already of far-reaching

importance. Some of them are embodied in the following table. It is not necessary to explain the chemical structure of the various splitting products whose names are mentioned. For the purpose of this argument, they may be described under the general name of amino-acids, and regarded simply as the units of which the proteins are built up.

## PERCENTAGES OF AMINO-ACIDS OBTAINED FROM PROTEINS.

AMINO-ACIDS.	ANIMAL PROTEINS.				PLANT PROTEINS.						
	Egg albumin.	Blood protein.	Milk protein.	Muscle protein.	Wheat protein.	Barley protein.	Maize protein.	Pea protein.	Cotton-seed protein.	Linseed protein.	Gelatin.
Glycine . . .	0	3.5	0	0.5	0.1	0	0	0.4	1.2	+	16.5
Alanine . . .	2.1	2.2	0.9	4.0	0.3	0.4	2.2	2.1	4.5	1.0	0.8
Valine . . .	...	+	1.0	0.9	...	0.1	0.3	...	+	12.7	1.0
Leucine . . .	6.1	18.7	10.5	7.8	4.1	5.7	18.6	8.0	15.5	4.0	2.1
Phenylalanine	4.4	3.8	3.2	2.5	1.0	5.0	4.9	3.8	3.9	4.1	0.4
Tyrosine . . .	1.1	2.5	40.5	2.2	1.9	1.7	3.6	1.6	2.3	0.7	0
Serine . . .	...	...	0.2	...	...	...	0.6	0.5	0.4	+	0.4
Cystine . . .	0.3	0.7	0.1	...	...	...	...	...	...	...	...
Proline . . .	2.3	2.8	3.1	3.3	4.0	13.7	6.5	3.2	2.3	2.9	5.2
Aspartic acid	1.5	2.5	1.2	0.5	0.7	...	1.4	5.3	2.9	1.7	0.6
Glutamic acid	8.0	8.5	11.0	13.6	24.0	36.4	18.3	13.8	17.2	11.6	0.9
Tryptophane .	+	+	1.5	...	+	+	0	+	+	+	0
Arginine . . .	...	...	4.8	5.1	4.4	2.2	1.2	10.1	...	6.1	7.6
Lysine . . .	...	...	5.8	3.3	2.2	0	0	4.3	...	1.2	2.8
Histidine . .	...	...	2.6	2.7	1.2	1.3	0.4	2.4	...	1.7	0.4
	25.8	45.2	50.4	46.4	44.2	66.5	58.0	55.5	50.2	47.7	38.7

+ means that the substance is certainly present, but that its amount has not yet been determined.

0 means that the substance is certainly absent.

... means that the presence or absence of the substance has not yet been determined.

These figures were determined by German or American chemists, except those for the protein of linseed, which are due to Mr F. W. Foreman of the Cambridge School of Agriculture, whose paper<sup>1</sup> may be consulted for references to the literature of the subject and for details of the method of working. They cannot be credited with any very great degree of accuracy, nor do they give anything like the total amount of the amino-acids resulting from the splitting up of the proteins to which they refer, as is shown by the fact that they do not add up to nearly 100. Doubtless there are many splitting products still to be discovered, and many improvements still to be made in the method of separation. The present method occupies several months, and uses many pounds' worth of materials and ap-

<sup>1</sup> 'Journal of Agricultural Science,' vol. III, part IV, p. 353, 1911.



paratus. In spite of all these drawbacks, the results represent a great advance in protein chemistry, and, as will be seen presently, lead to a new outlook on the subject of animal nutrition. They make it very clear that the proteins which were so long regarded as similar to one another, and assumed to have equal feeding values, are really very diverse in structure.

The proteins of animals and plants differ very markedly, notably in their content of glutaminic acid. The plant proteins vary greatly among themselves. Those obtained from the cereal grains contain very high percentages of glutaminic acid. Maize protein is remarkable in being entirely lacking in both tryptophane and lysine; that of linseed in containing an abnormally large percentage of valine. The animal proteins quoted in the table on the whole resemble each other fairly closely. Nevertheless, there are distinct differences between them, and these will, no doubt, be emphasised as further investigation discovers new splitting products, and new methods render more accurate the analytical results. The examples quoted in the table are only a very small proportion of those which have been published. Still, they are enough to support the modern view that every protein has its own peculiar structure.

The fact which is disclosed by the above investigations, that proteins readily split under the action of acids or digestive juices, has caused physiologists to re-examine the normal course of digestion of proteins in the animal. As the result of this re-examination, the view held nowadays is that proteins in the normal course of digestion in the stomach and intestines of the animal are split into the same kind of crystalline products mentioned in the table. After this splitting has taken place, the separate crystalline splitting products, or amino-acids, are absorbed into the blood, and thus distributed throughout the body. Each tissue then picks out the various amino-acids in the correct proportions to build up its own special protein.

This view rests on much indirect experimental evidence which cannot find a place in such a short paper. It may be well, however, to quote one experiment. A quantity of protein was artificially digested as completely as possible, until it was completely split into amino-acids, as shown by the fact that it no longer gave the usual chemical tests for protein substances. The mixture of amino-acids thus produced, together with appropriate quantities of fat and carbohydrates, was employed as the sole diet of a dog. The animal receiving no protein as such maintained itself without loss of weight, and must therefore have utilised the amino-acids to keep its tissues in repair.

This experiment appears to afford quite conclusive support

to the modern view that proteins are completely split in digestion, the splitting products being absorbed and built up again by the animal into its own special protein.

Accepting this view, and there does not seem to be much doubt about it, several conclusions follow which have a distinct and important bearing on stock-feeding.

In the first place, the proteins of any particular species of animal appear to have a definite composition,—that is to say, they contain the various amino-acids in definite proportions peculiar to themselves. Presumably, therefore, the animal will require to be supplied with these amino-acids in definite proportions. If the animal receives a diet in which the proteins contain an excessive amount of any particular amino-acid, the excess of this substance above the definite proportion required will not be utilised, but will be transformed into one or other of the various forms in which the animal excretes its nitrogen, and thus excreted in the urine without the animal receiving any benefit from it. In other words, if the proteins contained in a diet do not yield on digestion a mixture of the constituents for repair of the animal's tissues in the right proportion, the quantity of protein necessary for the animal will be that quantity which supplies enough of the constituent present in the smallest proportion. This quantity will supply far too much of some of the constituents, the excess of which above that required by the animal will go to waste.

Obviously the quantity of protein necessary for an animal will vary considerably, being smaller the nearer its composition approaches to that of the protein of the animal's tissues. An animal ought therefore to require the minimal amount of protein if that protein be supplied in the form of the flesh of its own species. This has been shown to be the case with dogs, which maintain their weight on far less protein supplied as dog flesh than if their protein is supplied in any other form. Now it would be impossible to feed farm stock on their own flesh for obvious reasons, but in their case protein could doubtless be economised in another way.

Farm stock nearly always receive a mixed diet, the constituents of which can be varied within certain limits. Attention has already been drawn to certain facts which show that certain mixtures of feeding-stuffs produce better results than other mixtures containing about the same amount of protein. The reason of this is doubtless that in the mixtures which are more than ordinarily successful, the proteins of the several ingredients of the diet are complementary to each other, one being rich in the amino-acids in which the others are deficient, and the mixture, therefore, having about the right composition to suit the animal. At present the information to

hand about the composition of the proteins of feeding-stuffs commonly used on the farm is very incomplete, and does not enable the chemist to predict mixtures which ought to be successful. The common basis of the diet of stock on the farm is home-grown produce, such as roots, straw, and hay. Cake or meal of various kinds is purchased to supply the protein and oil in which the above home-grown foods are deficient. Practical men often know from former experience that good results are obtained from certain mixtures, and buy cake or meal accordingly. There is also a certain amount of experimental evidence available, such as that already quoted. As a rule, however, the kind of cake or meal purchased is dictated by such considerations as cheapness or accessibility.

Under these circumstances the more numerous the ingredients contained in the diet the more likely is it to give successful results. In other words, an animal should maintain itself on less protein the greater the number of ingredients contained in its diet, for the greater the number of ingredients the more likely are the various proteins to be complementary to each other. To test this point, advantage was taken of the extremely useful papers on the Feeding of Cattle and Sheep by Mr Herbert Ingle, which have recently appeared in the last two volumes of these 'Transactions.'<sup>1</sup> From all the experiments therein collected the following figures were calculated:—

No. of ingredients in diet, meadow-hay being counted as two —grasses and clovers.	Pounds of digestible nutrients calculated as starch equivalents required to give 1 lb. of live-weight increase.	
	Cattle.	Sheep.
3 or under . . . . .	10.2	7.2
4 or over . . . . .	8.9	6.75

It is clear from these figures that the diets containing many ingredients produced considerably more live-weight increase per lb. of food digested.

A second practical point arises in the case of certain proteins or protein-like substances which are entirely deficient in certain constituents absolutely necessary to animals. The most interesting of these is zein, the protein of maize. This protein contains no tryptophane, and tryptophane is one of the constituents necessary to animals. Now, if the views expounded above are correct, zein should be incapable of

<sup>1</sup> Fifth Series, vols. 21 and 22 (1909 and 1910).

maintaining in repair the tissues of an animal, no matter how much protein the animal received in this form. This point has been tested in Cambridge by Dr F. G. Hopkins, who found that mice were unable to subsist on a diet in which zein was the only protein. If, however, a small quantity of the missing constituent tryptophane was added to the diet, they thrive as well as animals will do on a purely artificial diet.

An experiment similar to this was carried out some time ago with the protein-like substance gelatine, which resembles the proteins in many ways, but contains no tyrosine and no tryptophane. The experiment consisted in feeding two lots of animals on a diet containing an insufficient amount of protein, which was supplemented in one case by gelatine, in the other by gelatine and a small amount of tyrosine. The experiment was carried out before tryptophane was discovered. It was consequently incomplete, as tryptophane should have been added as well as tyrosine. Nevertheless, the addition of tyrosine markedly increased the efficiency of the gelatine in taking the part of protein in the animals' diet.

These experiments, while not being practical in the sense that it would be possible to improve the feeding value of maize or gelatine by addition of tryptophane or tyrosine, nevertheless prove conclusively that an animal requires certain amino-acids, and cannot exist on proteins which do not supply them: and this naturally leads on to another point.

It is well recognised that many foods commonly used on the farm contain only a comparatively small proportion of their nitrogen in the form of proteins, the balance being in the form of crystalline compounds, in all probability the same as the amino-acids which result from the complete digestion of proteins. For instance, mangels contain about 1 per cent of nitrogenous substances, of which considerably less than half are protein, the rest being crystalline compounds which have not been completely investigated. Among them, however, are asparagine and glutamine, which are at once converted by digestion with acid into aspartic and glutaminic acids, two of the best known splitting products of proteins. A hundred-weight of mangels, the common daily ration consumed by a full-grown bullock, contains 10 to 12 ounces of such crystalline substances, worth about 1½d. at the present market price of nitrogen compounds in foods. This looks a small amount, but it adds up to 10½d. per week, or to 17s. 6d. for the usual twenty weeks during which a fattening bullock is eating roots, and a saving of 17s. 6d. a head on fattening bullocks is an item which cannot be neglected.

The subject has received much attention, especially from Continental experimenters. The method of investigation has

commonly been to add asparagine, as typical of the crystalline nitrogenous compounds of mangels, swedes, grass, and other succulent foods, to a diet deficient in protein. In some experiments it has appeared to take the place of protein, and to enable animals to maintain their weight on a deficient protein supply. In other cases it has failed to do so, and the feeding value of asparagine is still regarded as doubtful. The probable explanation is, that when used to supplement proteins deficient in aspartic acids it proved sufficient, but when the proteins with which it was mixed were rich in that constituent, it was naturally useless as a source of nitrogen. Exactly the same reasoning applies to the other crystalline nitrogenous compounds which may be present in foods. It will probably be possible to utilise them when the chemist has identified them, estimated their relative quantities in the different foods in which they occur, and indicated other foods to the proteins of which they are complementary.

In the foregoing pages an attempt has been made to indicate the lines along which the chemistry of animal nutrition is advancing. The first step has been the separation of many proteins from the plant or animal products in which they occur, followed by their decomposition by means of digestive juices or acids, and the systematic isolation and estimation of the resulting amino-acids. This has shown conclusively that proteins differ greatly from one another in chemical constitution, and suggested that all proteins have not the same feeding value for all animals.

Side by side with this, physiologists have revised their views as to the digestion of proteins and their assimilation in animals. It is now recognised that proteins in the normal course of digestion are split into amino-acids, which are absorbed from the intestines into the blood, and utilised by the animal in the proportions necessary to build up the proteins of which its several tissues are composed. From this it follows that an animal will be able to maintain its tissues in repair on a minimum of protein, if it receives such a mixture of proteins in its diet as to yield on digestion a mixture of amino-acids in the proper proportions to suit the needs of the animal.

At present the number of proteins which have been separated and examined as above is relatively small, and the information as to the proportions of the amino-acids yielded on digestion far from complete. Many chemists are, however, devoting their attention to the subject, and some day perhaps the necessary information will be available to enable the chemist to predict mixtures of feeding-stuffs which should result in economy of protein. This at any rate is the direction in which the chemical study of animal nutrition is now tending.

Even the few results which have already been accumulated have made it possible to predict that the addition of the amino-acid tryptophane to the protein of maize would enable animals to utilise that protein, and this prediction has been shown to be correct in the case of mice. Such a success promises well for the future, and it is to be hoped that British chemists will not remain behind those of Germany and America in pursuing so interesting and important a line of investigation. The question of energy values appears to be well worked out; the next great economic advance in the science of feeding will almost certainly come in the saving of protein on the lines indicated.

## VARIATION IN THE COMPOSITION OF COWS' MILK WITH ADVANCE OF LACTATION.

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### INTRODUCTION.

No subject has thrust itself more persistently upon the attention of dairy-farmers during the past ten years than that of the variations in the composition of cows' milk. Interest was focussed upon the subject by the deliberations and report of the Departmental Committee appointed in 1900 by the Board of Agriculture, and the subsequent years have been marked by a great outburst of activity in the experimental investigation of the subject, and by the establishment, notably in the West of Scotland by the Highland and Agricultural Society, of milk-record societies, whose primary function is to organise and carry out systematic testing of dairy herds.

The experimental work has contributed a great mass of useful information with regard to the influence of various factors upon the amount and quality of the milk yielded by cows, and incidentally has furnished overwhelming evidence of the great variability in the composition of milk produced under the ordinary conditions of the dairy-farm.

Upon one point, however, the reports of the investigators have contributed but little information—viz., as to the general trend of the changes in the composition of cows' milk throughout the whole course of lactation. In view of the obvious practical importance of the question, the amount of reliable information available in agricultural literature is surprisingly meagre, although, so far as any rate as the variation in fat-

content is concerned, an abundance of information must be contained in the files of milk-record societies and others carrying out the systematic testing of herds.

We propose, therefore, to summarise here the information obtained by us upon this point during the past two years from fortnightly tests of the milk of each cow of the dairy herd at the Manor Farm, Garforth (Experimental Farm of the University of Leeds and the Yorkshire Council for Agricultural Education).

The records up to date include thirty-three completed periods of lactation (26 cows), of which twenty-three, each extending over six months or more, have been utilised in compiling the tables given later. In a large number of cases the samples were subjected to a "complete" analysis, so that information has been obtained as to the variation in the proportion of each ingredient.

Before commencing to discuss the results, a brief summary of the general composition of milk may be given.

#### GENERAL COMPOSITION OF MILK.

Milk consists essentially of a suspension of globules of fat in a watery fluid termed milk-serum. It is customary to speak of it as composed of *water* and "*solids*." The "*solids*" of milk are made up of a variety of ingredients, the chief of which are—

Fat.

Milk-Sugar or Lactose.

Albuminoids or Proteins (Casein, Albumin).

Mineral Matters or Ash.

Special value and importance attach to the fat, and this is hence usually considered separately, whilst the remaining ingredients are grouped together under the name of "*solids not fat*."

Milk always contains some of each of the above-named ingredients, but the proportions in which they are present may vary widely in different samples and at different stages of lactation. In this respect the most remarkable changes are those which take place during the first week after calving, in the transition from "*colostrum*" (or "*beastings*") to normal milk. Our records do not include samples of colostrum, but the following remarks will serve to indicate the nature of the changes that take place at this stage.

#### *Colostrum.*

Colostrum differs mainly from ordinary milk in its richness in albumin. Thus whereas normal milk usually contains about

0.4 per cent of albumin, colostrum may contain 15 per cent or more. It is further distinguished by a higher content of mineral matter, especially the phosphate of lime so necessary for the growth of bone. It is frequently also rich in fat. This fat approximates in character to body-fat much more closely than does the normal milk-fat secreted throughout the greater part of the period of lactation.

The rapidity with which the transition from colostrum to normal milk takes place is well illustrated by the following analyses of the fluid yielded by a cow at different periods within the first three days after calving:<sup>1</sup>—

Time of Milking.	Total Solids.	Fat.	Casein.	Albumin.	Sugar.	Ash.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Immediately after calving	26.8	3.5	2.6	16.6	3.0	1.2
After 10 hours	21.2	4.7	4.3	9.3	1.4	1.6
" 24 "	19.4	4.7	4.5	6.3	2.9	1.0
" 48 "	14.2	4.2	3.3	2.3	3.5	0.9
" 72 "	13.4	4.1	3.3	1.0	4.1	0.8

It will be noted that the proportion of "total solids" in the milk fell rapidly, and that the diminution was due mainly to the diminution in the secretion of albumin.

#### *Normal Milk.*

The last traces of the colostrum characteristics have usually completely disappeared from the milk within ten or fourteen days from the date of calving, and it is with the variations in its composition from this point onwards that we are more immediately concerned.

We propose to indicate the general trend of these variations by means of the averages for each successive month of lactation. For this purpose we have taken the first and second fortnightly samples as typical of the first month's milk, the third and fourth samples as typical of the second month's milk, and so on to the end of lactation. The data in the tables are derived solely from those cows (23 in number) which remained in milk for six months (12 fortnights) or longer.

The changes in composition require to be considered in connection with the changes in the amount of milk secreted.

<sup>1</sup> Eugling, 'Fortschritte a. d. Gebiete d. Viehhaltung', vol. 4, p. 29, 1878.



and hence we may first summarise the records upon the latter point.

*Variation in Yield of Milk.*

The following table gives the average daily yield of milk for each successive month of lactation (see also fig. 29), as computed from the records kept daily upon the farm:—

Month of Lactation.	Milk Yield. lb.	Number of Cows.
1st . . .	32·2	23
2nd . . .	31·0	23
3rd . . .	28·2	23
4th . . .	24·2	23
5th . . .	21·3	22
6th . . .	18·3	23
7th . . .	15·7 <sup>1</sup>	21
8th . . .	13·3 <sup>1</sup>	19
9th . . .	11·4 <sup>1</sup>	16
10th . . .	9·5 <sup>1</sup>	12

The table calls for little comment, since the steady fall in milk-yield with advance of lactation is well known to all. The averages as given do not bring out the fact that during the first few weeks of lactation the milk-yield tends to rise. Thus the average daily yields for the first three fortnights were 31·7 lb., 32·7 lb., and 31·6 lb. respectively, so that the average reached its maximum about the end of the first month. In some cases the yield tended to rise for much longer than this—in one case for fully twelve weeks.

In the above table no account is taken of the fact that the dates of calving of the different cows were spread over the whole year, so that in many cases the conditions as to feeding, &c., varied widely at the same stage of lactation. The following table, in which the averages for twelve cows which calved in March and April are compared with the averages for the other eleven cows, illustrates very clearly how marked may be

<sup>1</sup> The averages for the seventh and later months are not the actual averages of the cows remaining in milk so long, but of the whole number, as computed by assuming that if all had remained in milk for the full period the changes in average yield from month to month would have been proportional to those actually recorded by the cows that remained in milk. Thus the *actual* averages for the sixth and seventh months of the 21 cows that milked for seven months or more were 18·5 lb. and 15·9 lb. respectively. Hence if the other 2 cows had remained in milk and their yields had fallen off in similar proportion, the average yield of the 23 cows for the seventh month would have been  $18·3 \times \frac{15·9}{18·5}$  or 15·7 lb.—

the figure given in the table. The same method of "correction" has been applied for these months in all other tables. It is open to obvious objections, but we consider it preferable to the alternative of limiting the tables to the averages of only the 12 cows that milked for the full period.

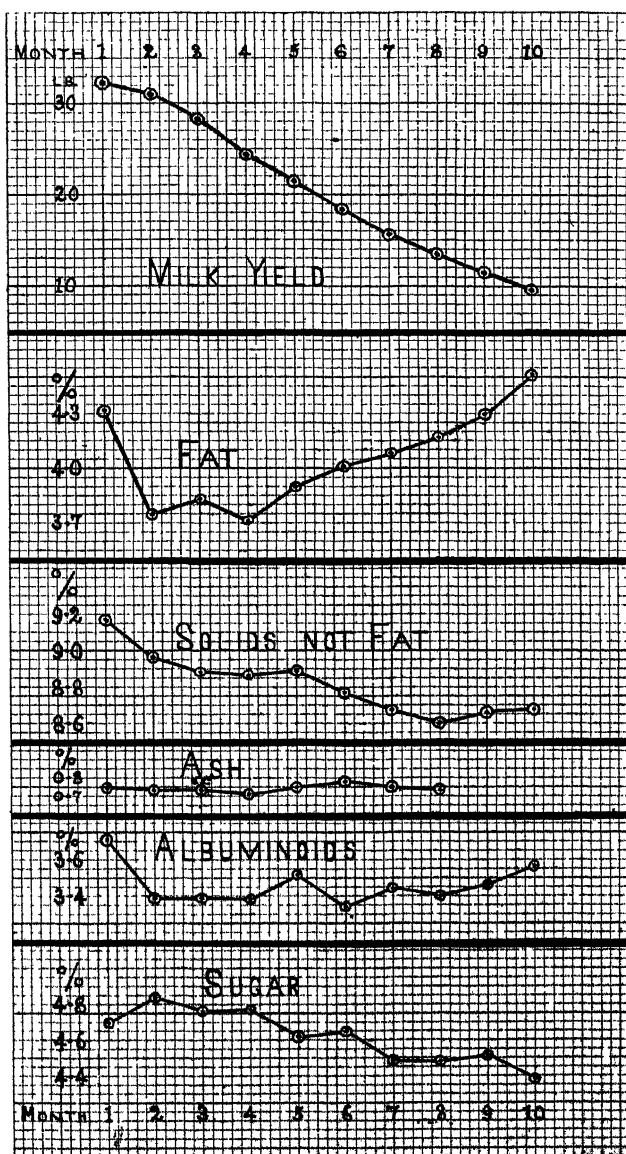


Fig. 29.—Diagram of Milk Yield.

the influence of the time of calving upon the rate at which the milk-flow diminishes. In order to facilitate the comparison

VOL. XXIII.

of the two groups, the average for the first month has been taken as 100.

Cows Calving.	Months of Lactation.									
	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.
March and April .	100	97	89	77	67	54	43	33	24	15
Other months .	100	96	85	72	65	60	55	49	47	45

It will be observed that for the first four or five months the differences, such as they are, are in favour of the cows which calved in March and April, and would thus receive the full benefit of the pastures at their best. For the second half of the period of lactation, however, when these cows would be housed and fed artificially, their yield fell at a much more rapid rate than that of the other cows which received the benefit of the pasturage at a later stage of lactation. The change from house-feeding to pasturage had but little effect, however, in the case of cows that were far advanced in lactation when the change was made.

These facts are by no means novel, but the data given may serve to point the moral as to the influence of the time of calving upon the rate of shrinkage in milk-production.

### *Variation in Percentage of Fat.*

An abundance of information is available upon this point, and there is a great measure of concordance in indicating that the percentage of fat sinks appreciably during the first two or three months of lactation and then steadily rises to the end. This indicates a close connection between the percentage of fat and the yield of milk, which we have seen varies in precisely similar fashion but in the opposite direction (fig. 29). In other words, over short periods the weight of fat yielded at each milking may be expected to be fairly constant. (For examples see 'Transactions' for 1906, p. 127, Fifth Series, vol. xviii.)

Our results are fully in accord with the above generalisation, as may be seen from the following table in which the monthly averages are given (see also fig. 29). In all cases the fat was estimated by the Gerber method. For the first six months the

averages are based in each case upon forty-six samples of morning milk and a like number of evening samples.

Month.	Percentage of Fat. Per cent.
1st	4.32
2nd	3.75
3rd	3.83
4th	3.71
5th	3.90
6th	4.01
7th	4.08
8th	4.16
9th	4.30
10th	4.51

The records of the individual cows in the great majority of cases closely bear out the indications of the averages. In most cases the percentage of fat fell somewhat rapidly during the first month or six weeks, then remained fairly constant up to the fourth or fifth month, after which a steady rise set in, which in some cases was greatly accentuated during the last week or two of lactation. In one case only did the percentage of fat fall steadily throughout the later stages of lactation.

#### *Variation in Percentage of Solids-not-Fat.*

In the analysis of milk for the purpose of detecting adulteration, the percentage of solids-not-fat is largely relied upon for the detection of the addition of water, and is therefore a figure of considerable importance.

The usual practice is to make direct estimations of the fat and total solids, and thus arrive at the proportion of solids-not-fat by difference. In our tests we have estimated the solids-not-fat in this way in the case of 17 cows for the greater part or (in the case of 11 cows) for the whole of the period of lactation. In all cases where they were not thus estimated, they have been calculated from the fat and specific gravity by Richmond's formula.<sup>1</sup>

The tests have furnished us with abundant material where-with to test the reliability of Richmond's formula, and a communication on this subject has already been given elsewhere.<sup>2</sup> It will suffice here to state that, although the percentage of solids-not-fat arrived at in this way may, in the case of individual samples, be affected with very considerable errors, especially with cows far advanced in lactation, still the average of such numbers of results as are involved in the calculation

<sup>1</sup> Solids-not-fat =  $\frac{\text{Fat } \%}{5} + \frac{1000 \times \text{Sp. Gr.} - 1000}{4} + 14.$

<sup>2</sup> Agricultural Education Association, Summer Meeting, Boston, July 1909.

of our monthly averages is not likely to be vitiated by any serious error.

The following table gives the monthly averages (see also fig. 29):—

Month.	Per cent of Solids-not-Fat.
1st . . . . .	9·17
2nd . . . . .	8·96
3rd . . . . .	8·88
4th . . . . .	8·86
5th . . . . .	8·89
6th . . . . .	8·77
7th . . . . .	8·67
8th . . . . .	8·60
9th . . . . .	8·66
10th . . . . .	8·67

It will be noted that during the earlier stages of lactation the variations in solids-not-fat were similar to those observed in the case of fat, the average tending to fall during the first two months and then remaining fairly steady for three or four months. Unlike the fat, however, there is no evidence of any appreciable rise in the percentage of solids-not-fat during the second half of the period. There was apparently a slight tendency to rise during the last two months, but on the whole the tendency during the second half of the period of lactation was for the percentage of solids-not-fat to fall. The records of the individual cows show considerable differences in this respect, however, which is not surprising in view of the composite character of the solids-not-fat. In a few cases the percentage of solids-not-fat rose very markedly during the last stages of lactation. Data published from other sources (mainly German) indicate that this is of very common occurrence.

#### *Variation in Percentage of Ash.*

Very few observations upon this point have been published.

Collier,<sup>1</sup> in a series of tests of the milk of a large number of heifers, could trace no marked regularity in the variations of the percentages of ash with advance of lactation.

Richmond<sup>2</sup> expresses the opinion that the proportion of ash tends to increase towards the end of lactation,—an opinion confirmed by Hinchcliff<sup>3</sup> in the case of two cows.

In all cases the variations have been found to be very slight.

Our records include a large number of estimations of ash,

<sup>1</sup> New York Agric. Exp. Station—Report of Director, 1894.

<sup>2</sup> 'Dairy Chemistry,' 1899, p. 132.

<sup>3</sup> Inaugural Dissertation, Leipzig, 1903.

the results of which are summarised below (see also fig. 29). For the ninth and tenth months of lactation the numbers of samples in which ash was estimated were too small to permit of reliable averages being deduced.

Month.	Ash per cent.	No. of Cows.
1st . . .	0.75	19
2nd . . .	.73	19
3rd . . .	.73	19
4th . . .	.71	19
5th . . .	.75	17
6th . . .	.78	16
7th . . .	.75	10
8th . . .	.73	10

The results bring out strikingly the great constancy in the proportion of ash in milk. There is evidence of a tendency for the proportion of ash to fall slightly during the first four months of lactation and then to recover.

#### *Variation in Percentage of Albuminoids.*

The few investigations that have been carried out on this point are fairly well in agreement in indicating that the proportion of albuminoids in the milk varies with advance of lactation in precisely similar fashion to the variation in fat-content. That is, the percentage of albuminoids sinks for a few weeks and then, after a period of comparative constancy, rises steadily throughout the rest of the period, the rise being especially marked during the last few weeks.

Our results are fairly in accordance with this generalisation, as may be seen from the table (see also fig. 29):—

Month.	Albuminoids. Per cent.	No. of Cows.
1st . . .	3.72	10
2nd . . .	3.39	10
3rd . . .	3.39	10
4th . . .	3.38	10
5th . . .	3.52	10
6th . . .	3.34	9
7th . . .	3.44	7
8th . . .	3.40	6
9th . . .	3.46	5
10th . . .	3.57	4

#### *Variation in Percentage of Sugar.*

The percentage of sugar in a sample of milk can be arrived at either by direct estimation or, with sufficient accuracy, by

deducting the sum of the percentages of ash and albuminoids from the percentage of solids-not-fat.

Our results have been mainly arrived at by the latter method, but in many cases direct estimations were made. The monthly averages are summarised in the following table (see also fig. 29):—

Month.	Milk-Sugar. Per cent.
1st . . . . .	4·70
2nd . . . . .	4·84
3rd . . . . .	4·76
4th . . . . .	4·77
5th . . . . .	4·62
6th . . . . .	4·65
7th . . . . .	4·48
8th . . . . .	4·47
9th . . . . .	4·51
10th . . . . .	4·38

It will be seen that the percentage of sugar, after rising a little during the early stages of lactation, fell steadily throughout the rest of the period. This agrees well with the experience of other observers.

### *Summary.*

Our tests have brought out very clearly the fact that the variations in the composition of milk with advance of lactation may differ greatly in the case of the different cows, so that no precise generalisations upon the subject can be formulated.

In general the milk is richest in total solids, fat, and albuminoids in the earliest and latest stages of lactation, and poorest about the second or third month. The sugar-content tends to decrease steadily with advance of lactation after the first month or so, but the proportion of ash remains approximately constant.

## GRASS AND CLOVER SEEDS AT COCKLE PARK.

By Professor GILCHRIST, Newcastle-upon-Tyne.

COCKLE PARK, the Agricultural Experiment Station of the Northumberland County Council, situated four and a half miles from Morpeth, has an exposed position within about twelve miles of the East Coast, and is over 300 feet above the sea-level. These features of the position of the station and the

climatic conditions have a considerable bearing on the results which follow.

Much attention has been given to mixtures of grass and clover seeds since the station was established in 1896. In addition, since 1904 small plots of grass and clover seeds, taken from samples sold in the North of England, have been grown annually on a light soil in the Lower Nursery. These are sown in April, in rows nine inches apart, without a covering crop. They are cultivated between the rows, and the results on the different plots are noted in the different years of their growth until they have died out or served their purpose.

*Notes on some of the more important Grasses and Clovers.*

Plots of various grass and clover seeds have now been grown for several years in succession from seed imported from different countries, alongside, when possible, of home-grown seed. The results on these and on rotation hay justify the following observations being made under the conditions of soil and climate which prevail at Cockle Park.

1. Italian rye-grass does not stand the climatic conditions so well as does perennial rye-grass. It has been found in the Lower Nursery that the plants grown from home seed of the former stand better, and are apparently more hardy, than the plants from imported seed.

2. Tall oat-grass is productive at Cockle Park, and gives a quick return on a sandy loam soil. It is not, however, suitable for sowing on the poor clay soil at this station. This grass, although of the same species as the wild form of tall oat-grass, which is such a troublesome weed in many parts of North Britain, does not develop the onion couch "roots" which are so troublesome to clean from infested soils. The cultivated form of this grass is largely used as a rotation grass in the North of France.

3. Meadow fescue fails to produce lasting plants at Cockle Park, and is evidently not a suitable grass to sow under the climatic conditions of the North-east of England. On the other hand, at Whitehall, Cumberland, where the climatic conditions are not so rigorous, it has proved to be a most valuable grass.

4. After perennial rye-grass, cocksfoot is undoubtedly the most valuable grass at Cockle Park. It does not produce a large bulk of herbage in first year's hay, but in later years it produces heavy crops *and nutritive herbage if it is cut early*. If hay, in which cocksfoot grass is abundant, is too mature before being cut, the feeding value of the hay is especially reduced, and the growth of the aftermath is greatly restricted.



On the other hand, when cut early it rapidly produces an abundant growth of nutritive aftermath. When cocksfoot is used in a seed mixture it is advisable to grow it in considerable quantity, as when sown thinly its tendency to a coarse and tufted habit of growth is encouraged. Tests now in progress indicate that cocksfoot varies considerably, according to the country from which the seed is obtained.

5. Timothy grass does not give good results at Cockle Park, so that only a small amount of this grass is used in a seeds' mixture for more than one year. The drier climate of the east is not anything like so favourable to the development of this grass as the moister climate and milder winters of the west.

6. Red or broad-leaved clover, as well as practically all clovers grown from English seed, have usually given more vigorous growth and have lasted a longer time than those grown from imported seed. "Clover sickness" causes a great deal of trouble at Cockle Park. The clover plants usually begin to die off shortly after the first crop of "seeds" hay has been mown, but in some years, notably after the wet and cold spring of 1909, the plants die off before producing their first crop of herbage. In 1909 the clovers in the first year's hay were an excellent plant till the end of April, but from that time they gradually died off and had almost disappeared before the time for haymaking. The diseased clover plants at Cockle Park were found to be infested with stem eelworm (*Tylenchus devastatrix*),<sup>1</sup> which is also the cause of "tulip-rooted" oats. The fungus, *Sclerotinia trifoliorum*, was not present on the diseased plants. Unfortunately, clovers grown from home seed suffer nearly as much from this disease as those grown from imported seed, but the results on the whole have been rather better when the seed was home-grown.

7. Many of the red clovers sold as cow-grass clover in the North of England have not given as good results as ordinary red clover. The true single-cut cow-grass clover has, however, given fairly good results, and red clover from Sweden has given results in many ways somewhat like single-cut cow-grass. These two latter are later in maturing their first crop of hay, and do not produce as much aftermath.

8. Alsike clover has not been a success at Cockle Park, either for first or second year's hay. It should be stated, however, that on many Tweedside farms this clover is highly valued; and it is claimed for it that it frequently resists "clover sickness" when red clover succumbs to this disease.

9. Trefoil or yellow clover grows well at Cockle Park, but it has two great disadvantages when grown in a seeds' mixture for

<sup>1</sup> See Board of Agriculture Leaflet, No. 46.

one year's hay: (a) it flowers about a fortnight earlier than red clover, and is therefore too mature and has lost a considerable amount of its most nutritive herbage before haymaking takes place; (b) owing to its rapid growth in early summer it has a tendency to choke the other clovers and grasses of the seeds' mixture.

10. Ordinary white clover seed does not produce lasting plants; in fact, they fail just as quickly as plants produced from ordinary red clover seed. *Wild white clover* seed, however, produces plants which are evidently perennial. White clover is still abundant on a plot at Cockle Park on which such seed was sown five years ago, and no signs of clover sickness have been found on plants produced from this seed during the past five years. As bearing on this point, it should be stated that where *wild white clover* and *wild red clover* have been developed by basic slag on the old land hay and pasture fields at Cockle Park, no signs of clover sickness have been found on these wild or native plants.

11. Trials of small plots at Cockle Park and in the garden at Armstrong College have indicated that clovers can be easily choked out by grasses when too heavy a seeding of the latter is included in the seeds' mixture along with the clovers.

#### *Seeds' Mixtures for One Year.*

The seeds' mixture that was usually sown at Cockle Park for one year's hay up to a few years ago contained the following seeds (per acre):—

- 12 lb. perennial rye-grass.
- 6 lb. Italian rye-grass.
- 8½ lb. English red clover.
- 2½ lb. trefoil.
- 1½ lb. Alsike clover.

For two years in succession (1908 and 1909) hay was grown on three plots which had been seeded as follows:—

Plot 1 was sown with the foregoing mixture.

Plot 2, same as for plot 1, except that 16 lb. Italian rye-grass were substituted for 12 lb. perennial rye-grass and 6 lb. Italian rye-grass.

Plot 3, same as for plot 1, except that 6 lb. perennial rye-grass and 10 lb. Italian rye-grass were substituted for 12 lb. perennial rye-grass and 6 lb. Italian rye-grass.

On the average of the two years, plot 1 produced 31½ cwt.; plot 2, 26½ cwt.; and plot 3, 29½ cwt. of hay per acre. These results confirmed observations which had already been made that perennial rye-grass gives heavier crops of hay than Italian rye-grass under the climatic conditions at Cockle Park.

As ordinary clovers frequently all fail, even before one year's hay has been produced, at Cockle Park, the following seeds' mixture per acre is now adopted for one year:—

18 lb. perennial rye-grass.

8 lb. English red clover.

3 lb. wild white clover.

This mixture, costing about 14s. 6d. an acre at last year's prices, has been decided on for the following reasons: (a) perennial rye-grass is the safest and most reliable grass for one year's hay at Cockle Park; (b) English red clover as a rule stands long enough to produce a large amount of good herbage in first year's hay; (c) wild white clover, because of its freedom from "clover sickness," is the best plant to ensure a fair proportion of clover herbage in the hay crop if red clover fails.

The practice at Cockle Park is to apply dung only for the turnip crop. The seeds are sown down with the following barley crop, and when the barley crop is removed, 5 cwt. an acre of basic slag (38 per cent phosphates) is applied to the young seeds, and in addition on light soils 1 cwt. muriate of potash. If clovers are abundant in the young seeds in spring no further manures are given, but if grasses are to form the bulk of the hay, a top-dressing of 1 cwt. nitrate of soda an acre is applied in spring.

#### *Seeds' Mixtures for Three or more Years.*

It is much more difficult to lay away land for old land hay or pasture in the east of Britain, where the climate is much drier and the winters are more rigorous, than in the west. In the past those laying away land under adverse conditions have almost invariably experienced a difficult period to bridge over from the time that the sown plants fail until natural herbage is developed. Further, under adverse soil and other conditions the natural herbage which ultimately develops is generally of a poor, weedy, and worthless character. This problem has been grappled with at Cockle Park by noting which plants when sown have continued to produce abundant and nutritive herbage for a considerable time thereafter, and those plants which have failed to do so have been eliminated from the seeds' mixtures.

In Tower Hill Field, 4 plots, each  $\frac{1}{4}$  acre in area, were sown down on wheat, after summer fallow, in the spring of 1906. The soil is thin, and is a poor and stiff clay, lying on boulder clay. The plots were all manured in cross plots, as is shown on the following tables, in November 1906, after the wheat crop had been harvested:—

## SEEDS' MIXTURES PER ACRE FOR THREE OR MORE YEARS.

## Results per acre, 1907, 1908, and 1909.

	Cost of seed. 1910.	Plot 1. lb.	Plot 2. lb.	Plot 3. lb.	Plot 4. lb.
Perennial rye-grass . . . . .	2 <sup>3</sup> / <sub>4</sub> d. per lb.	6	6	—	—
Italian rye-grass . . . . .	3 <sup>1</sup> / <sub>4</sub> d. "	6	6	6	—
Cocksfoot . . . . .	9d. "	6	6	22	12
Timothy . . . . .	3 <sup>1</sup> / <sub>4</sub> d. "	3	3	—	3
Meadow fescue . . . . .	11d. "	8	8	—	6
Tall fescue . . . . .	1/- "	—	—	—	4
Tall oat-grass . . . . .	8d. "	—	—	—	4
Alsike . . . . .	9 <sup>1</sup> / <sub>4</sub> d. "	2	2	—	—
English red clover . . . . .	8 <sup>3</sup> / <sub>4</sub> d. "	4	4	—	4
White clover . . . . .	8d. "	4	4	—	—
Wild white clover . . . . .	1/6 "	—	4	—	4
		39	43	28	37
Cost of seeds per acre . . . . .		23/-	29/-	18/3	31/-
Weight of hay per acre.		cwt.	cwt.	cwt.	cwt.
First year, 1907 . . . . .		30 <sup>1</sup> / <sub>2</sub>	35	6	22 <sup>1</sup> / <sub>2</sub>
Second year, 1908 . . . . .		18 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>4</sub>	30
Third year, 1909 . . . . .		15 <sup>3</sup> / <sub>4</sub>	21 <sup>3</sup> / <sub>4</sub>	9 <sup>3</sup> / <sub>4</sub>	22 <sup>1</sup> / <sub>2</sub>
Average . . . . .		21 <sup>1</sup> / <sub>2</sub>	28 <sup>3</sup> / <sub>4</sub>	7 <sup>3</sup> / <sub>4</sub>	25 <sup>1</sup> / <sub>2</sub>

## EFFECTS OF MANURES (PER ACRE) ON THE DIFFERENT SEEDS' MIXTURES, 1907, 1908, and 1909.

(The manures were applied in November 1906.)

		Cross plots.			D No. manure
		A 10 cwt slag. 200 lb. P <sub>2</sub> O <sub>5</sub>	B 10 tons dung.	C 10 cwt. slag. 10 tons dung.	
		cwt.	cwt.	cwt.	cwt.
Plot 1.	1907 . . . . .	39 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>2</sub>	38	6 <sup>1</sup> / <sub>2</sub>
	1908 . . . . .	23 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>2</sub>	20 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>
	1909 . . . . .	15 <sup>3</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>2</sub>	19 <sup>1</sup> / <sub>4</sub>	8
	Average . . . . .	26 <sup>1</sup> / <sub>2</sub>	21	26	6 <sup>3</sup> / <sub>4</sub>
Plot 2.	1907 . . . . .	38	38	38 <sup>1</sup> / <sub>2</sub>	18
	1908 . . . . .	33 <sup>1</sup> / <sub>2</sub>	33 <sup>1</sup> / <sub>4</sub>	26	9 <sup>1</sup> / <sub>2</sub>
	1909 . . . . .	25 <sup>1</sup> / <sub>2</sub>	22 <sup>1</sup> / <sub>4</sub>	24 <sup>1</sup> / <sub>2</sub>	11
	Average . . . . .	32 <sup>1</sup> / <sub>4</sub>	31	29 <sup>3</sup> / <sub>4</sub>	13
Plot 3.	1907 . . . . .	4	8 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>4</sub>
	1908 . . . . .	8 <sup>1</sup> / <sub>2</sub>	8	10 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>
	1909 . . . . .	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>
	Average . . . . .	8	8 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>4</sub>
Plot 4.	1907 . . . . .	35 <sup>1</sup> / <sub>2</sub>	25 <sup>1</sup> / <sub>2</sub>	25 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>
	1908 . . . . .	39 <sup>1</sup> / <sub>2</sub>	33 <sup>1</sup> / <sub>2</sub>	23 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>2</sub>
	1909 . . . . .	29 <sup>1</sup> / <sub>2</sub>	21 <sup>1</sup> / <sub>2</sub>	16 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>
	Average . . . . .	34 <sup>1</sup> / <sub>2</sub>	27	22	8
Cost of manures . . . . .		22/10	50/-	72/10	—

Plots 1 and 2 were sown with exactly the same seeds' mixtures, except that plot 2 had in addition 4 lb. wild white clover. Both had 4 lb. ordinary white clover in the mixtures.

sown on them. Little white clover was present on plot 1, even in the first year's hay crop, and only a few indigenous plants in the later years. On plot 2 there has been an excellent bottom growth of white clover throughout the three years, and this plot has produced on the average nearly 7 cwt. more hay an acre than plot 1. The grasses have been healthier and more abundant every year on plot 2, undoubtedly owing to the nitrogen collected by the clover roots. This was evident in June 1907 (in the first year's hay), when cocksfoot grass especially had a much darker green colour when associated with clover plants on plot 2. The larger crops have been due to increased grass development, as well as to the development of white clover herbage.

Plots 2 and 4 compare the results of seeds mixtures with and without the rye-grasses. In the first year nearly 12 cwt. more hay was produced when these were included, but in the two following years the advantage was with the mixture without rye-grasses. Wild white clover developed better in the first year on plot 4, probably because of the absence of the quick-growing rye-grasses, and cocksfoot grass also grew more freely in the absence of the rye-grasses.

Plot 3 had cocksfoot grass only as a perennial plant, with some Italian rye-grass. This plot has produced very small crops of hay. What is a remarkable contrast is that cocksfoot has contributed mainly to the bulk of the hay grown on plots 2 and 4, but on these plots it was associated with clovers, especially white clover, whereas clovers were practically absent on plot 3. There could be no more striking evidence of the value of clover herbage to the grasses than this result.

Marked contrasts in effects were produced by the different dressings of manures. On cross plot A, 10 cwt. slag an acre produced heavier crops than 10 tons dung an acre on cross plot B on all the plots which had clovers in the seeds' mixtures, but not on the cocksfoot plot. What is still more remarkable is that 10 tons dung and 10 cwt. slag did not give as good results on the clover plots as 10 cwt. slag alone. The explanation must be that dung developed grasses to such an extent in the earlier stages that the growth of clovers was greatly checked, and consequently the collection of nitrogen by means of clover roots has been much less, with the result that less grass has been produced in the later years. A good result has been obtained by combining slag and dung for meadow-land in the Lower Brick Field at Cackle Park, but in this case the clovers had been well established by treatment with slag before the first dressing of dung was applied.

Dung, as a general manure, contains a considerable amount of nitrogen, but its influence in producing grass on this poor

clay soil has not been nearly so great as indirect manuring with nitrogen, by developing clover roots. This is clearly indicated by comparing the results on plots 1, 2, and 4 with those on plot 3 in the lower table.

The north-west of Back House Field was sown down in the spring of 1909 (with barley) with the seeds' mixture given for plot 1 following, and in addition three plots [plots 1 and 2 were each one acre and plot 3 half an acre in area] were marked off and sown with the following seeds' mixtures per acre:—

	Plot 1.	Plot 2.	Plot 3. <sup>1</sup> Mr Elliot's Inner Kaimrig Mixture.
	lb.	lb.	lb.
Perennial rye-grass . . . . .	6	—	—
Italian rye-grass . . . . .	6	—	3
Cocksfoot . . . . .	6	12	10
Timothy . . . . .	3	3	—
Meadow fescue . . . . .	8	6	6
Tall fescue . . . . .	—	4	4
Tall oat-grass . . . . .	—	4	3
English red clover . . . . .	4	4	2
Alsike . . . . .	2	—	1
Wild white clover . . . . .	4	4	—
Cost of seeds an acre, 1910 prices .	23/	31/	42/6
Results per acre, 1910 (first year)	57½ cwt.	53½ cwt.	45½ cwt.

<sup>1</sup> The seeds' mixture for plot 3 also contained the following seeds in addition to the above: Hard fescue, 1 lb.; rough-stalked meadow-grass, ½ lb.; smooth-stalked meadow-grass, 1 lb.; golden oat-grass, ½ lb.; ordinary white clover, 2 lb.; kidney vetch, 2½ lb.; chicory, 3 lb.; burnet, 8 lb.; sheep's parsley, 1 lb.; yarrow, ½ lb.

The plots were all dressed with 10 cwt. an acre (200 lb. phosphoric acid) of basic slag in November 1909. It will be seen that the most satisfactory results have been given on plot 1. The excellent results on all the plots must be very largely attributed to the effect that basic slag has had in developing the clover herbage. The soil is a poor strong clay, which responds well to this phosphatic manure without the addition of a potash manure.

Mr Elliot's mixture, although it has given a fair crop of hay in the first year, produced not only much less hay than was grown on plots 1 and 2, but hay which was not of as good quality. Evidently this mixture, which has given such good results at Clifton Park, is not suitable under the Cockle Park conditions.

The seeds' mixture for plot 1 is practically the same as that which gave the best result on Mr Parkin Moore's estate, Whitehall, Cumberland, in an important set of trials on the laying down of pasture commenced by Dr Somerville in 1896. — Wild

white clover, however, has been added to the Whitehall mixture at Cockle Park with, which is evident, remarkably good results. On the other hand, meadow fescue, although included in seeds' mixtures 1 and 2, has practically failed to produce plants.

About four years ago a field was laid down to permanent pasture by Mr Parkin Moore at Whitehall. On one acre of it he added one pound of wild white clover seed to the mixture; this field has since been dressed with slag, and now the pasture is better by about ten shillings an acre where this clover seed was sown, owing to the better bottom of clover herbage which has been developed.

In view of the foregoing and other results, the following seeds' mixture is now adopted for three or more years' ley on the strong soils at Cockle Park:—

12 lb. perennial rye-grass.

10 lb. cocksfoot.

4 lb. Timothy.

4 lb. English red clover.

4 lb. wild white clover.

This mixture costs about 21s. an acre at last season's prices. This, like that for one year now adopted at Cockle Park, has been arrived at by including only the plants which give the best results, these being comparatively few in number. Plants that fail to produce good herbage, and are not of a fairly permanent character, have been eliminated.

#### *Seeding and Manurial Trials at Ravensworth.*

An interesting result, cognate to the foregoing, has been obtained on Lord Ravensworth's estate near Gateshead-on-Tyne. A large park of old pasture is now in very poor condition. The herbage consists of tufted hair-grass, blue point grass, field woodrush, and other plants of a poor character. When examined in December 1909, no clover or other leguminous plants could be found, nor any of the better grasses. The whole field seems to have more than two inches of poor, withered, and matted herbage on its surface. The underlying soil is a black moorish sandy loam, which usually at about a foot deep changes into a yellow sandy clay.

One acre of this was ploughed with a disc coulter plough in February 1910, when 10 cwt. basic slag (39 per cent phosphates) and  $3\frac{1}{2}$  cwt. potash salts (30 per cent potash) were sown on the surface of the ploughed land. In the end of April the land was well harrowed and rolled so as to get a firm seed-bed, and the following seeds' mixture was sown on the one-acre plot:—

12 lb. perennial rye-grass  
10 lb. cocksfoot  
4 lb. Timothy                      cost about 25s. an acre.  
4 lb. English red clover  
6 lb. wild white clover

The seeds were sown without a crop.

The season was a favourable one for young seeds. When the plot was inspected in September 1910 there was an excellent crop of herbage, in which young succulent cocksfoot grass was strongest and most abundant. Timothy grass was also abundant; white clover was plentiful, but red clover was not prominent. The herbage was thick and close, and quite a foot high. It was mown in the end of September, and produced 8 tons 11½ cwt. an acre of green herbage, which was quite dry when cut. Had this been made into hay it would have produced about 2½ tons an acre.

This trial has only reached an early stage. Two striking results are—(a) that the grasses and clovers have produced so much herbage in the season they were sown; (b) that basic slag and a potash manure have become effective so quickly. No nitrogenous manure was applied, and the land has not been manured for a long time. Undoubtedly, therefore, the clover plants have collected nitrogen during the past summer by means of their root nodules, which has been of great service to the grasses.

#### *Production of Wild Clover Seed.*

The Journal of the Board of Agriculture for December 1909 contains an article by the writer on "Trials of Wild White Clover." The seed of this is obtained from meadows in the south of England, where wild white clover has been developed by basic slag or other manures. There can be no doubt that if a supply of the seed of wild white clover and wild red clover were available, both of these plants would be exceedingly useful on "clover-sick" land, and where perennial clovers are desired.

In M'Alpine's translation of Stebler and Schröter's 'Best Forage Plants,' it is stated that if seed is collected from wild red clover and sown for several generations, plants are obtained which cannot be distinguished from the cultivated variety.

The production of seed from wild white clover and wild red clover is well worth the attention of seed-merchants, and the probability is that the seed produced one generation from the wild form would produce plants with practically all the good qualities of the latter. By doing so the cost of such seed could probably be considerably reduced.



It is clear from the results of these trials that seeds' mixtures should be adapted to the soils and climatic conditions of the farm, as well as to the purpose for which they are grown. Further, the plan of manuring must be suitable for the plants included in the seeds' mixture. As has already been indicated, one of the chief objects now aimed at at Cockle Park is to develop leguminous herbage in hay and pasture by manuring with phosphatic manures, with the addition of a potash manure on the lighter soils. By this means the soils of the old land hay and pasture fields have become greatly enriched in nitrogen, as has been clearly shown from the results of Mr Collins' analyses of these soils, which are published in the Annual Guides to Cockle Park.

## THE PROGRESS OF BACON-CURING.

By LOUDON M. DOUGLAS, F.R.S.E., Edinburgh.

THE bacon-curing industry in the United Kingdom has been passing through a period of considerable trial during the last three years, owing to the great scarcity of supplies from foreign countries. Hitherto we have depended to a large extent upon our bacon imports, and the home products, which always maintain their supremacy in quality over imported goods, have only supplied a small portion of what has been consumed. This condition of affairs has, during the last few years, been accentuated by the decline of the annual imports from the United States, which at one time was the principal source of supply. Statistics for 1910 show that not only in bacon, but in hams and salt pork, the decline continues.

### IMPORTS AND VALUES OF PIG PRODUCTS INTO THE UNITED KINGDOM FOR THREE YEARS, INCLUDING 1910.

IMPORTS.			
	1908.	1909.	1910.
BACON—	Cwt.	Cwt.	Cwt.
From Denmark . . .	2,049,513	1,809,745	1,794,416
„ United States of America . . .	2,858,312	2,189,053	1,306,921
„ Canada . . .	687,759	443,386	411,935
„ other countries . . .	90,158	183,279	350,117
Total . . .	5,685,742	4,625,463	3,863,389

IMPORTS—*continued.*

	1908.	1909.	1910.
<b>HAMS—</b>			
From United States of America . . .	Cwt. 1,169,601	Cwt. 1,073,569	Cwt. 665,775
From Canada . . .	52,657	53,593	37,621
„ other countries . . .	2,969	1,867	15,730
Total . . .	1,225,227	1,129,029	719,126
<b>PORK, salted (not bacon or hams)—</b>			
From United States of America . . .	81,119	55,639	38,866
From other countries . . .	189,489	202,900	188,325
Total . . .	270,608	258,539	227,191

## VALUES.

	1908.	1909.	1910.
<b>BACON—</b>			
From Denmark . . .	£5,680,923	£5,801,382	£6,341,726
„ United States of America . . .	6,726,084	6,057,473	4,453,293
„ Canada . . .	1,827,636	1,364,357	1,449,637
„ other countries . . .	245,936	578,453	1,146,618
Total . . .	£14,480,579	£13,801,665	£13,391,274
<b>HAMS—</b>			
From United States of America . . .	£2,936,960	£2,952,084	£2,329,516
From Canada . . .	138,472	154,222	138,232
„ other countries . . .	9,237	6,590	58,837
Total . . .	£3,084,669	£3,112,896	£2,526,585
<b>PORK, salted (not bacon or hams)—</b>			
From United States of America . . .	£139,178	£113,555	£101,645
From other countries . . .	189,673	199,307	202,523
Total . . .	£328,851	£312,862	£304,168

This summary shows conclusively that not only are the supplies of pig products short from the United States, but from all other countries which have hitherto been supplying the United Kingdom. In confirmation of these figures, it is of interest to examine the shipments of American bacon which have arrived at Liverpool and Manchester—the principal ports to which this produce comes. The figures are given for the last three years, and are as follows:—

SHIPMENTS OF AMERICAN BACON  
TO

Year.	Liverpool.	Manchester.	Total.
1908 . . .	690,600	21,800	712,400 boxes.
1909 . . .	519,200	28,800	548,000 „
1910 . . .	332,100	11,800	343,900 „

It will be seen that in the short period of three years the quantity has dropped more than 50 per cent. To appreciate what these figures mean, it must be borne in mind that out of a total of 100,000,000 pigs which exist in the world, the United States possesses about one-half, or nearly 50,000,000.<sup>1</sup> The pig population of the United Kingdom, while it varies somewhat from year to year, fluctuates round about 4,000,000. It will thus be seen that the home pig supply is wholly inadequate to meet the demand for pig products.

The continued shortage has made itself felt throughout the United Kingdom, and has reacted upon the price of live pigs to such an extent that they have reached prices which have not been touched since the year 1877, and these increased prices have had the salutary effect of directing the attention of the farming community to this source of revenue. As a consequence, pig-breeding has received a very considerable impetus throughout the country, more especially during the last twelve months.

*Bacon-Curing in Scotland.*

On previous occasions,<sup>2</sup> when we have considered this matter, we have dealt with it from different aspects with a view to showing that swine husbandry and bacon-curing are essentially features of modern farming, and it is gratifying to know that considerable progress has been made in connection with these industries in Scotland during the past year. Swine husbandry depends primarily upon the quantity of food which may be

<sup>1</sup> 'Statistique des Superficies Cultivées de la Production Végétale et du Bétail.'—Institut International d'Agriculture, Rome, 1910.

<sup>2</sup> "Bacon-Curing in Scotland," 'Transactions of the Highland and Agricultural Society of Scotland,' 1909. "Swine Husbandry and Bacon-Curing," 'Transactions,' 1910.

available, and no doubt one of the principal causes why this business was not pursued as it might have been was the fact that feeding-stuffs, and particularly maize-meal, were very dear. Such a condition of things is now altered, and there is news from different maize-producing countries in the world to show that the produce for last season was far above the normal. As an example of this, it may be stated that the maize crop in the United States is in excess of the last estimate by six million acres. Similar reports are to hand from Canada and from the British Colonies, and it would therefore seem that this particular class of food will be in abundance during the present year.

This is a very important matter, not only for Scotland, but for the whole of the United Kingdom, and is calculated to promote confidence amongst pig-breeders in the immediate future.

#### *Dairying and Bacon-Curing.*

It has frequently been pointed out that pig-breeding and bacon-curing are the natural corollary of modern dairying, but that proposition applies more particularly to dairying as carried on in creameries or cheese factories, where butter and cheese are produced, and where there are, in consequence, certain by-products, in the shape of separated milk or whey, to be profitably disposed of. The creamery business in Scotland has not succeeded owing to the fact that the fresh milk trade has increased by leaps and bounds. It is quite useless to attempt to run a creamery at a profit near any of our centres of population, as the demand for milk in its whole state is such as to make the price far in excess of what a creamery or cheese factory can afford to pay. No great prospect, therefore, presents itself of there being a surplus of dairy products with which to foster swine husbandry. A different class of feeding must therefore be resorted to, so that the business may be carried on; and if it is borne in mind that whilst maize is in certain proportions a valuable food, it belongs to that class which contains a large proportion of starch, and therefore is conducive to the production of bad bacon. It must, therefore, be mixed with other foods so as to minimise the risk of producing an inferior quality.

#### *Pig-Feeding.*

There have not been any systematic experiments in connection with pig-feeding in this country, and for our information in connection with that subject we have to rely on the experiments conducted by various University experimental stations in the United States, where, as might be supposed, the

culture of the pig is regarded as being a very essential part of agriculture. Amongst these experiments may be cited those conducted by Mr F. B. Linfield, of Montana,<sup>1</sup> in which he has come to the conclusion that peas make a more efficient food for swine than barley, but the greater cost of the peas renders barley more economical. He also concludes that a ration of grain with separated milk as a supplementary food gives more rapid gains and is more economical. He found, however, that tankage may be classed as being on the same basis as household or hotel slops, and came second as a supplementary food, in so far as the rate of gain was concerned, but was first in efficiency as a food. Roots, clover, and alfalfa were all experimented with, and after a prolonged series of experiments it was found that the most economical results were to be derived from a mixed ration, the order of merit of the supplementary foods to grain being—(1) skim milk; (2) roots; (3) tankage; (4) pasture; (5) clover and alfalfa. A later series of experiments has been carried out by a number of workers at the College of Agriculture of the University of Missouri,<sup>2</sup> and quite remarkable results have been attained there, where it has been shown that the mineral elements of food-stuffs enter very largely into the specific effects on the development of swine. This is an aspect of the question which, so far, has not been approached, and which shows the possibilities of investigations which may alter our whole views of pig-feeding.

#### *Bacon-Curing in England and Wales.*

The continued shortage of bacon supplies has directed the attention of the Farmers' Associations to the question of associating themselves together either as joint-stock companies or as co-operative societies, with a view to putting down bacon factories in different counties; and quite a number of schemes are at present being discussed, some of which are likely to materialise during the present year. The feature of the various proposals which is most notable is that the small bacon factory, placed in a convenient market town, is considered to be the most feasible, inasmuch as the cost of such an undertaking is not very great, and there is no difficulty in getting rid of the offal. This is the most important part of the bacon-curing business. It is quite a mistake to place bacon-curing establishments at a remote distance from a town, as the offal must first of all be sold when it is quite fresh, and, as

<sup>1</sup> "Pig-Feeding Experiments." By F. B. Linfield, Montana Agricultural College Experiment Station. Bulletin No. 73.

<sup>2</sup> "Specific Effects of Rations on the Development of Swine." University of Missouri, College of Agriculture Experiment Station. Bulletin No. 81.

it is a low-priced article, it will not stand any great cost of handling.

*Bacon-Curing in Ireland.*

The number of pigs either killed for bacon or bought dead at markets in Ireland during 1910 amounted to 1,142,935, and, as a comparison with this figure, it may be stated that the number of pigs handled in Denmark for the same period for bacon-curing purposes was 765,963,<sup>1</sup> the latter figure corresponding with the decline in imports from Denmark which have already been indicated. In Ireland, however, a considerable impetus has been given to bacon-curing, and more especially is this the case in connection with the co-operative movement. Creameries which have been established throughout Ireland seem to have reached their limit, and there are very few new establishments of this kind being put down. It has been apparent for many years, to the Irish Agricultural Organisation Society, that the legitimate development of the creamery movement would be the organisation of co-operative bacon factories, and it is quite obvious how the one would naturally follow upon the other, owing to the great quantities of separated milk which are made available in the Irish creameries and which can be most profitably used in pig-feeding; but Ireland has also a source of supply for live and dead pigs in the fresh state for Great Britain, as may be gathered from the fact that during 1910 some 324,041 animals or carcasses were exported in this way. Most of these pigs are used by pork purveyors or sausage makers, and are necessarily of the heavy type, the trade in smaller pigs or porkers not having so far been extensively developed.

*Fresh Pork.*

There are very large quantities of fresh pork consumed in the United Kingdom, and inquiries throughout the country indicate that this business is rapidly on the increase, the taste for fresh pork products having increased very much during recent years. The quantities of fresh pork which are imported from other countries into the United Kingdom are given in table on following page.

It will be noticed in these statistics that the principal source of supply is the Netherlands, and quite a marvellous trade has sprung up between Holland and the United Kingdom in this produce. Fresh pork is preferred, more especially in England,

<sup>1</sup> "Weekly Pig Statistics" issued by the Department of Agriculture and Technical Instruction for Ireland.

	Quantities.		Values.	
	1909.	1910.	1909.	1910.
PORK, fresh and refrigerated—				
Pork, fresh—	Cwt.	Cwt.		
From Netherlands .	378,376	366,197	£905,741	£900,116
„ Belgium .	10,215	8,848	25,359	24,006
„ other countries	25,945	54,207	63,628	144,111
Total . . .	414,536	429,252	£994,728	£1,068,233
Pork, chilled—				
From United States of America . .	878	...	£1,694	...
From other countries	...	...	...	...
Total . . .	878	...	£1,694	...
Pork, frozen—				
From United States of America . .	6,377	1,044	£14,200	£2,880
From other countries	6,653	49,611	12,700	125,684
Total . . .	13,030	50,655	£26,900	£128,564
Total of pork, fresh and refrigerated . .	428,444	479,907	£1,023,322	£1,196,797

from pigs weighing from 60 to 120 lb. or thereby, dead weight; and as the principal supply comes from Holland, it may be interesting to state that the type of pig cultivated is generally cross-bred, middle white Yorkshires playing a leading part in the production. A cross between a middle white Yorkshire and a Berkshire pig generally gives a porker weighing from 60 to 70 lb. in about four months' time, and this class of produce suits the London market, where daily supplies are brought from the Netherlands. The Dutch methods of handling fresh pork leaves no room for improvement, as the animals are handled in the most expeditious manner in large abattoirs, where they are slaughtered, dressed carefully, and minutely inspected by trained inspectors. They are then duly labelled and stamped, if they are passed as being free from disease. They are cooled in large open halls and by cold air circulation, produced by refrigerating machinery, and are slung in rectangular crates in which they are placed on board ship, and in this way are carried to British ports, leaving at night and arriving in the morning. Such a supply is an enormous acquisition to British

pork purveyors; and it may come as a surprise to British agriculturists to know that the farmers of the Netherlands have so organised themselves as to conduct from day to day such a huge business in these pig carcasses as has been indicated. It is another case of the agriculturists in foreign nations being able more quickly to take advantage of the conditions in the United Kingdom than are the farmers at home.

### *Bacon-Curing on the Farm.*

The fluctuations in the price of pigs have had a very remarkable effect in causing many farmers to revert to the old method of handling pigs on the farm, not only for fresh meat but for curing purposes, and this idea seems likely to spread at a very rapid rate, more especially amongst those farms which are at a considerable distance from any town, or are not located near to a bacon factory. There was a time when it was quite common, and indeed looked upon as being good practice, to slaughter one or more pigs on the farm for home use. In the West of Scotland and the North of England this practice existed for many generations, and has been carried on, on certain farms, from time immemorial, giving rise to "farm-cured" hams and bacon. It would now seem as if this practice were to be largely extended, as many farmers have found it advantageous to manufacture a small quantity of hams and bacon, utilising the residual parts locally, and in this way realising a much higher price than would otherwise be obtained by the ordinary method of marketing.

The kind of pig to be slaughtered is one which is well bred and in good condition, and animals which are suffering from either tuberculosis or swine fever, or may be in a poor condition, are certainly not fit to be handled on the farm. Pigs also which have been fed on soft food, such as brewery grains, or an excess of maize, should also be avoided, as the bacon will be soft in the texture, and will be very difficult to cure. A pig weighing about 2 cwt. live-weight, if in good condition, will be right for bacon-curing purposes.

The equipment necessary for farm-curing is neither very great nor very costly. There should be plenty of hot water; a vat or large tub should be provided for scalding; then there should be a sparr'd table for scraping or scuttling the scalded animal, and a hand windlass or set of pulley blocks for hoisting the carcass. In addition to these appliances a set of tools would be necessary, comprising a large-headed mallet, knives, a steel, a pig-scraper, and a set of hooks and gambrels, a wooden spreader, a cleaver, a saw, and a good thermometer. For curing purposes it will be necessary to have a small rackle pump.



The curing cellar should be a nice cool place, and should be preferably dark, with nothing but artificial light available. The floor should be constructed of either flagstones or trowelled concrete, and should be sloped in one direction so as to give a fall to the pickle which is formed. On some farms a refrigerating machine is used in connection with the handling of butter and cream, and where such equipment is available it will be easily applied to the curing cellar, as if a low temperature, say as low as 42° F., is wanted, it can be attained, and will serve to promote greater efficiency in the curing. Higher temperatures, however, up to 55° F., are allowable, but the produce will be a little more salty than would be otherwise necessary with the temperature at 42° F.

In handling the pig on the farm, the animal is first of all stunned by means of a broad-faced mallet. It is then easily hoisted on to the branch of a tree and the blood let out, so that the animal is thus despatched in a very humane manner. Care should be taken in thrusting the knife through the neck of the animal to see that it is thrust in the direction of the heart, so that the main blood-vessels are severed. The blood at once rushes out, and may be caught for use later on. In a short time the carcase will be free from blood, and may then be lowered into a tub or scalding tank, which should be at a temperature of about 160° F., and there should be plenty of water to cover the carcase. The carcase is turned round in this water until the hair softens and comes away easily in the hand. The two hind legs are split and the sinews exposed, and a wooden gambrel inserted underneath: the carcase is hoisted into a vertical position, where an incision is made between the aitch-bones and is continued down to the apex of the lower jaw. The intestinal offal is then removed and sorted out into various portions, every one of which may be put to a separate use, the intestines being cleaned for sausage-making and blood-puddings; the stomach, liver, kidneys, &c., are all removed separately, and form a valuable food by themselves. The breast-bone is then cut down and the skirt or diaphragm is cut right round. The carcase is cleansed and washed, and is allowed to cool for some hours, after which it may be severed into two sides, or the backbone may be taken out, so as to form two sides. The feet and head are removed, and the carcase is allowed to cool over night.

In the curing process care should be taken to have everything very clean and fresh, and the atmosphere of the cellar should be sweet. Previous to beginning to cure, it will be necessary to make a pickle which can be pumped into the meat, and which is composed of—

14 lb. salt.  
1 $\frac{1}{4}$  „ saltpetre.  
1 $\frac{1}{4}$  „ dry antiseptic.  
1 $\frac{1}{2}$  „ cane sugar.

This is made up to five gallons, and boiled and skimmed until clear. It is then cooled down to the atmosphere of the cellar before being used. As soon as the sides are cool enough they are laid on a box or low bench and are trimmed, the steaks being cut out and the spare rib and blade-bone removed. The tops of the ribs are sawn off and the breast-bone is cut off. The large blood vein in the neck is carefully removed, and, after a final trimming all over with the knife, the sides may be said to be ready for curing.

They are first of all pumped all over the fleshy parts with the pickle referred to, and a little muslin bag containing an equal portion of salt and saltpetre is inserted in the pocket hole formed by the removal of the blade-bone. Over the top of the sides is laid a mixture of saltpetre and dry antiseptic, and over the top of this is laid a heavy layer of salt. The sides may then be stacked on the top of each other, six to ten deep, and left to cure. If the weather is cool they may be cured in the mild state in fourteen days, but if the weather is fairly warm it will be desirable to lay the sides out separately and salt them heavily, keeping them under the salt for at least twenty-one days. Should it be desired to keep the bacon thus produced for a long time after it is cured, it may be necessary to let the salt melt and become assimilated by the tissues of the meat for as long a time as twenty-eight days.

In curing the hams the process is practically identical. The ham has to be cut off and trimmed to a nice size, but it is not desirable to pump the ham at all, only that portion of it where the blood vein occurs. This should be pumped with the pickle, and the ham should be immediately covered over with the saltpetre and antiseptic mixture, on the top of which a layer of salt is placed, the shanks of the hams pointing downwards.

At the end of the curing period the hams and bacon should be turned upside down so as to drain, and they are then ready in a day or two either for use as fresh bacon and hams, or they are dried or smoked according to need. The drying and smoking do not involve any great amount of trouble or expense, any loft being good enough for the drying process. A small smoke-house can easily be constructed so as to take either the hams or bacon that may be required on the farm. It is possible even to make a suitable smoke-stove by means of an old barrel, hanging the flitches and hams inside and placing hardwood sawdust on the ground. When the sawdust is lit it begins to smoulder, and produces that flavour which is so

desired in smoked bacon. Sometimes the curing of both hams and bacon is carried out by the wet process; that is to say, the hams and bacon are simply immersed in the pickle and left there to cure until they are ready, but this produces softer meat than the dry method already described.

The other products from curing on the farm are very numerous, such as pigs' heads and feet, which are cured in pickle; sausages, black puddings, chitterlings, lard, brawn, cured tongues, and numerous other products of a cognate character, all of which naturally arise in connection with the industry, and the details of handling of which would take too long to describe.

The object of the foregoing sketch is to show that there is not any great trouble in farm bacon-curing, so that if the business develops, as there seems every likelihood of it doing, and is conducted on the lines indicated, there is no reason why it should not prove to be a very profitable part of modern agriculture.

#### *Pig-Breeding in Small Holdings.*

The development which has taken place in small holdings has directed attention to pig breeding and feeding as being one of the industries which can be advantageously associated with this system of agriculture, and there can be little doubt that much of the future supply of pigs in the United Kingdom will be derived from small holders, as it has been found that pig-breeding in the small way can be conducted without very much capital, and brings in the largest return of any system of live stock feeding. It is therefore conceivable that in districts where small holdings are numerically great, associations might be formed so as to profitably utilise the pigs in a certain area by means of small bacon factories; and if this method were generally adopted it would tend, not only to a large increase in the population of pigs, but to the production of considerable quantities of valuable offal which could be consumed locally as food. On these lines there is great room for development, and the next few years will show whether anticipations which are at present being formed in this country will be realised, and whether it will pay the small holder to combine for the utilisation of his own pig produce, or whether it may be better for him to dispose of his pigs at the nearest market.

#### *The Outlook.*

The general outlook in pig-breeding and bacon-curing in the United Kingdom is very hopeful, and there seems reason to

suppose that the cloud which has fallen on these two industries is likely now to be lifted, and that the future will have more prosperous times in store for those agriculturists who devote themselves to the breeding and feeding of pigs. No reliance can be placed upon supplies being restored from the United States or, for that matter, from Canada, and these two great sources may be looked upon as slowly sinking into insignificance. In Denmark the supply of pigs does not increase in proportion to the great demands from the United Kingdom, which is the principal market for Danish produce, and it would therefore seem that the limit of production in that country has been reached. The future supplies, therefore, must be to a large extent grown in the United Kingdom, and this would seem to be not impossible of realisation when it is considered that feeding material for pigs is likely, at least during the present year, to be more plentiful than it has ever been before.

## THE PROS AND CONS OF AGRICULTURAL CO-OPERATION.

By WILLIAM E. BEAR.

CO-OPERATION is a word of very extensive meaning, and it is not easy to draw a clear distinction between what is usually known by that name and association which is not regarded as co-operative. Any collective action by a number of persons for common objects is in reality co-operation, no matter what those objects may be.

Dr Lorenzoni, chief of the Economic and Social Bureau of the International Institute of Agriculture, and editor of the most comprehensive account of agricultural co-operation in the principal countries of the world ever published, and now in course of issue in several bulletins, endeavours to distinguish between economic association, to which he would limit the term co-operation, and association which is not economic. Although he is conducting his great work with remarkable ability and good judgment, however, he appears to find it impossible to draw a clear line of distinction.

### *The United Kingdom.*

Co-operation, in the widest sense of the term, has long been very extensive in the United Kingdom. But if attention be limited to association for purely commercial purposes, Great

Britain is very far behind most of the other principal countries of the world in the adoption of co-operation, while even Ireland, in spite of her creameries and credit banks, has not yet advanced to the front rank in this connection.

Returns obtained by the Labour Department of the Board of Trade enumerate 932 agricultural co-operative societies at work in the United Kingdom at the end of 1909. Of these 317 are styled "productive" and 336 "distributive," while 222 are credit societies in agricultural districts (not counting the 19 in urban districts), and 57 societies for the mutual insurance of live stock owned by their members. If the farming and dairy departments of 71 societies, not mainly agricultural, be added, the total is 1003.<sup>1</sup> This total may be compared with 22,964 in Germany on July 1, 1909, which had increased by June 1, 1910, to 23,845. There has been an increase since 1909 in the United Kingdom, but complete returns for 1910 are not yet available.

The "productive" societies are mainly concerned with creameries or dairies, and a few with eggs and poultry and bee-keeping, while the "distributive" societies are mostly operative in the collective purchase and distribution of the seeds, manures, implements, and other requirements of their members.

The proportion of productive societies is large in consequence of the inclusion of the Irish creameries. The proportion is quite different in England and Wales, as shown by a classification of societies affiliated to the English Agricultural Organisation Society, which numbered 320 at the end of 1909. Out of this total 133 are classed as distributive, 134 as small holdings and allotments societies, 29 as credit banks, and only 16 as productive. Twelve of the 16 are dairy societies, two are engaged in farming, one in industries not specified, and one in milling. The rest are: one fruit grading, one motor service, three auction, and one insurance societies, the Co-operative Federation and the Central Co-operative Agricultural Bank. At the end of 1910 the number of societies affiliated to the Organisation had increased to 410, or 90 more than at the end of 1909, while eight more were in course of registration in January last, bringing the total up to 418. The increase in unaffiliated societies cannot be given.

The report of the Scottish Agricultural Organisation Society for 1909 shows that there were in that year 39 affiliated agricultural co-operative societies, of which 30 were "trading" societies, six dairy societies, and three of other kinds. The

<sup>1</sup> The aggregate of the figures of the English, Scottish, and Irish Agricultural Organisation Societies for the end of 1909 is 1194. Probably the auxiliary and home industry societies of Ireland are not included in the total given above.

report for 1910 is not available at the time of writing; but Mr John Drysdale, secretary of the society, has kindly informed me that 26 new co-operative societies were formed in that year, making 65 in all apparently. Thirty-two of them are mainly poultry societies, their principal business being the collection and prompt marketing of poultry produce, though they also purchase feeding-stuffs and other requirements for their members. There are eight dairy associations, five of which have collecting milk depots and creameries fitted up with modern equipments. In the West of Scotland cheese-making is regarded as the most profitable method of disposing of surplus milk. No credit bank had been formed up to the end of 1909, and the secretary has not named one in his communication. As details of membership and turnover are not complete, it is of use to give them. The number of unaffiliated societies is probably quite insignificant.

The secretary of the Irish Agricultural Organisation Society has favoured me with the following list of affiliated co-operative societies in Ireland up to the end of 1909:—

Classification.	No. of Societies	Membership.	Paid-up Share Capital.	Loan Capital.	Turnover.
Dairy societies .	301	44,213	£138,354	£111,365	£1,840,500
Auxiliary societies, not separately registered	79				
Agricultural societies	155	16,050	6,253	40,326	112,222
Poultry societies	18	6,152	2,292	4,026	64,342
Credit societies .	234	18,422	—	56,469	57,641
Home Industries societies	21	1,375	1,267	1,450	7,666
Flax societies .	9	589	482	5,796	2,286
Federations societies	3	227	6,753	6,360	259,925
Miscellaneous (including bacon-curing societies and bee-keepers)	15		1,501	2,834	48,987
Grand total .	835	91,661	£170,314	£228,626	£2,893,569

### *Indifference of Large Farmers to Co-operation.*

The circumstances of farmers in this country differ widely from those of the countries of continental Europe. Our system is one of large farming, compared with that of countries in which peasant-proprietors form the vast majority of the tillers of the soil. Compared with the latter, again, British farmers are men of considerable capital, and therefore they are better able to rely upon their own resources than cultivators of the soil whose financial position differs but little from that of our agricultural labourers. When small holders have greatly in-

creased in number, agricultural co-operation will increase much more rapidly than it has done even in recent years. At present they are not thick enough on the ground to co-operate as easily as the peasant-proprietors of most European countries. They are not too numerous, if not too distant from a large town, to sell their products at retail prices to consumers, and no method of co-operation for the sale of the produce of the land yet introduced can give as good results as that method of marketing.

*Denmark on the Brain.*

For the last fifteen years or more the numerous public speakers and writers who undertake to teach British farmers their business have been persistently citing the Danish system of farming and co-operation as the model which should be imitated in this country. To adopt a word that has lately become as hackneyed as the example of Denmark, this subject has become a veritable obsession among these gentlemen.

Now the farm practice common in Denmark is certainly not superior to that of Great Britain, and there is hardly anything in the former for our farmers to imitate. As for their system of co-operation, it is admirable for their circumstances, which are altogether different from ours. They cater mainly for an export trade, and our farmers for a home trade. They convert their milk into butter, whereas here the great majority of our dairy farmers have much more profitable uses for their milk in selling it in its raw state or making it into cheese. In Ireland, where agricultural circumstances are much more akin to those of Denmark than they are in Great Britain, Danish examples have been followed to a considerable extent.

*Co-operation in Germany.*

The co-operative system of Germany is much more comprehensive than that of Denmark, or, indeed, any other country. As classified in the Bulletin of the International Institute of Agriculture, the agricultural co-operative societies of Germany are enumerated as follows for June 1, 1910:—

Loan and Savings Banks . . . . .	15,526
Purchase of requirements . . . . .	2,293
Dairy . . . . .	3,325
Others . . . . .	2,701
Total . . . . .	23,845

The "others" include some of the most interesting forms of association, each of which will be noticed. First, however, the

dates of foundation will be given in reference to the three forms of co-operation, separately named above, as these will show that Germany led the way in the movement under notice many years before Denmark joined in it.

Germany is the home of the agricultural loan banks, the first of which was founded by Raiffeisen in the winter of 1847-8. In 1908 the business done by 13,675 banks, not including 1483 not federated, amounted to £210,000,000. Their working capital was £94,459,000; the loans to members during the year reached £50,792,540; and the deposits amounted to £69,931,680. The number of members was 1,293,993.

Associations for the purchase of requirements were started before 1860, and there were 350 of them as early as 1884, and 725 in 1889. Like the banks, they have been constantly increasing in number. In 1908 the number of federated societies of this class was 1970; the members numbered 220,728; and the value of the produce bought was £5,051,928. There were 219 societies not federated in the year named.

Co-operative dairies were first founded about 1870, and 172 were in operation in 1884. In 1908 the number of federated societies of this class was 2138, with 213,297 members. The value of their produce sold in that year was £11,472,167. Only about two-thirds of the dairy societies appear to have been federated in 1908, as the total number in that year was 3279, or 1141 more than the number covered by the account just given.

Among the most important of the associations not separately enumerated in the abstract table are the Land Credit Societies (*Landschaften*), which are simply co-operative mortgage combinations, organised for a province or some smaller administrative unit. The first of these institutions was founded in Silesia in 1770 for large estates only, the owners of which had been reduced to a condition approaching ruin by wars, changes in the currency, and a great fall in prices. The scheme proved so successful that other provinces followed the example of Silesia. In course of time the scheme was extended to small properties, down to those of the peasant-proprietors.

In 1906 the mortgage bonds of these institutions in circulation amounted to over £157,000,000. The interest paid by the institutions has usually ranged from 3 to 4 per cent, but has occasionally, and to a comparatively small extent, been 4½ to 5 per cent. The individual mortgagors are charged a little more than the institutions pay, in order to provide for the expenses of the latter, usually ½ to 1 per cent more. At first mortgages were granted to no more than half the value of an estate; but since German agriculture became prosperous the participation has extended generally to two-thirds. For the like reason there



has been recently a disposition to reduce the security to the whole of the lands mortgaged, instead of covering all the lands of a province. The *Landshaftern* do not grant mortgages on land already mortgaged.

Other co-operative associations are horticultural, viticultural, distilling, corn storage, egg-selling, live-stock breeding, live-stock selling, machine and implement purchase and letting, small holdings distributing, water supplying, and electric light and power providing bodies.

*Forms of Co-operation not common in Germany.*

A few branches of co-operation not common in Germany, but prominent in some other countries, remain to be noticed. The "control" societies for ascertaining the relative merits of cows by careful and systematic registration of the milk-yields and percentages of fat and other solids, together with the relation between yield and the fodder consumed, are most common in Denmark, Sweden, and Norway, and are coming into somewhat extensive operation in the United States. Bacon factories are most prominent in Denmark, Canada, and the United States. The co-operative manufacture of artificial manures appears to be more extensive in Italy than elsewhere. In the same country, what are called "collective farms" are in extensive use, especially in Sicily—large farms being rented or bought either for management by the members of the co-operative societies, or distributed in small lots among the members for individual cultivation. Similar undertakings have been started on a considerable scale in Roumania. Telephone societies are mentioned in connection with the United States. That country, France, and Switzerland appear to be the countries in which the co-operative sale of fruit and vegetables is being carried on most extensively and successfully.

*Application to Great Britain.*

Let us now consider to what extent, if at all, the several forms of co-operation mentioned in reference to Germany and some other countries are suitable to the circumstances of farming in Great Britain. Ireland is not included, because the circumstances in that division of the kingdom differ widely from those of England and Scotland.

*Purchase of Requirements.*

Co-operation for this purpose is of the highest importance to small farmers, who cannot buy what they need on terms as ad-

vantageous as those attainable by large farmers, except by association, or protect themselves as well against fraud in connection with the adulteration of manures and feeding-stuffs. There is ample evidence to prove that the peasant-proprietors of France have been vastly benefited by the action of the societies of this class—known as Agricultural Syndicates—which are spread all over the country. The benefit in purity of commodities purchased through the syndicates has been as great as the saving in prices. The chief disadvantage is the necessity of paying cash for purchases, which, I believe, is usual; but that is met in most European countries by the credit bank societies which exist side by side with the other co-operative associations.

For extensive farmers the advantages of purchase through a co-operative society are much less obvious, and this in part explains why the supply associations—some of which have been in existence in England for a great number of years—have only recently become at all numerous. Such farmers can purchase manures, feeding-stuffs, and implements as cheaply as they can obtain them through a society, if they are able to pay cash. If they require credit the loan banks are of no use to them, as these institutions lend only small sums.

### *Credit Banks.*

These institutions were necessary in most Continental countries to save farmers, and particularly peasant-proprietors, from the clutches of usurers; and in Ireland they were nearly as badly required to rescue the small farmers from the ruinous exactions of shopkeepers and gombeen men. As already stated, credit banks are also needed in Great Britain wherever small holders are numerous, but are of no use to large farmers,—not only because of the limitation of the amounts lent, but also because such farmers would not tolerate the inquiry into their circumstances which is an essential feature of the management of these institutions.

There has not hitherto appeared to be any need in this country for the land credit associations which have assumed such vast importance in Germany.

### *Selling Produce.*

Co-operation for the sale of dairy produce, so far as butter, cream, and cheese are concerned, is one of the few examples of co-operative agricultural production, as well as sale of produce. So far as large dairy farmers are concerned, co-operatives are needed, as a rule, in only those parts of Great Britain remote

from facilities for the conveyance of milk to large centres of population at a moderate expense. On the other hand, the societies for the sale of milk are among the most striking examples of the advantages of agricultural co-operation existing in this country. Even more successful are the few associations which sell the milk of members by retail in towns. Examples of average prices, closely approaching 9d. a gallon for a whole year by this plan of disposing of milk, are given in the report of the English Agricultural Organisation Society for 1909.

There appears to me no need for co-operation in the sale of corn, whatever may be said as to seeds.

There is much to be said for co-operative auction marts for the sale of live stock, and some successful examples of this form of co-operation are given in the report of the English Agricultural Organisation Society for 1909, already referred to.

Small holders who can sell their eggs and poultry by retail in a neighbouring town can do better for themselves than any society could do for them, and this is possibly the case also with large farmers who sell weekly to shopkeepers in their market town. But in districts remote from a town of considerable size eggs and poultry are often very cheap, and there is the further difficulty of selling them when freshly laid. The report of the Scottish Agricultural Organisation Society shows that co-operation in the frequent collection and sale of eggs has met a real want in Scotland, and has therefore made greater headway in that country than any other form of co-operation.

Co-operation for the sale of fruit and vegetables in the wholesale markets is more urgently needed than in relation to any other products of the soil, as the existing marketing conditions are about as bad as they could be. The producer places himself absolutely in the hands of a commission salesman, who returns whatever price he pleases, and is not under any obligation to give vouchers. Such irresponsibility leads to many abuses.

The best remedy would be the formation of a great national co-operative society of fruit-producers, and another of vegetable-growers, powerful enough to force equitable conditions upon a sufficient number of salesmen in every market.

In California, Oregon, and some other divisions of the United States there are great combinations of fruit-growers, whose agents are spread over the country, keeping their associations well up in information as to the current condition and requirements of each of the principal markets, and otherwise looking after the interests of members.

*Other Objects.*

It would seem that there should be good openings for co-operative bacon factories in this country, and yet at present no striking success has been attained in the few ventures of the kind that have been made, so far as information is available to me, while one at least has proved a failure.

There is much to be said in favour of co-operative action in the improved breeding of live stock, particularly for the benefit of small holders. Even groups of farmers occupying farms of various sizes have in some districts derived much benefit from co-operating to obtain first-rate stallions or bulls for service in their districts. Such useful combinations, however, are less needed in this country than in most others, partly because many of our great landowners keep stallions and bulls for the use of their tenants, and partly in consequence of the numerous sales of pure-bred stock.

Nothing but praise is due to the system of "control" in relation to the registration of the yield and quality of the milk of cows, and observations upon diet and its results carried out systematically in Denmark and several other countries. Something of the kind has been carried out in Scotland, and recorded by the late Mr John Speir in past volumes of the 'Transactions.'

Of the other objects of co-operation named above as those common in some foreign countries, it cannot be said that there is any need of co-operation in corn storage, milling, or insurance in this country. We have associations for the purchase or renting and distribution of land in small holdings and allotments, and telephone service is a matter for villagers generally, rather than for agriculturists alone. British farmers are not likely to venture in distilling or the manufacture of manures and feeding-stuffs, while fruit-preservation is a hazardous undertaking, as some speculators have found to their cost.

Although the necessity of condensing this article has necessitated the omission of many statements and arguments, it will be observed that in the setting forth of the case of agricultural co-operation the "pros" greatly exceed the "cons" in number. The conclusion, therefore, is that, although agricultural co-operation is less urgently needed in Great Britain than it is in countries in which it has obtained an extensive footing, many forms of it might be initiated or extended in this country with great advantage.

## DEVELOPMENT OF FORESTRY IN SCOTLAND.

By Sir JOHN STIRLING MAXWELL, Bart.

*A Retrospect.*

It may be asked why Forestry has fallen into neglect in Scotland, and it appears worth while to attempt an answer to that question before we consider practical steps by which to make up lost ground. The fact is that the art of silviculture never really took root here. The first serious essay in forestry north of the Tweed belongs to the golden age, which embraced the last half of the eighteenth century and first quarter of the nineteenth, when Scotland was transformed as if by magic from a desert into a cultivated country, and the quick return from each new improvement was boldly plunged into fresh enterprise. On forestry, as on agriculture, the lairds of the day lavished the enthusiasm, industry, foresight, and wonderful gift for science and business, which distinguished their class at that time. These men did not embark on the creation of new woodlands without knowing all about it. Witness John Duke of Athole's 'Observations on the Larch,' 1810, and the article compiled from his notes for these 'Transactions,' vol. ix., 1832, which would have saved many disasters if later generations had had the wisdom to profit by it. Witness Sir Walter Scott's 'Quarterly' articles of 1827 and 1828. Witness also William Adam's 'Observations on Blair Adam,' 1834, a delightful book which deserves to be reprinted. At Blair Adam the value of a working plan was thoroughly understood. This learned judge's forestry is as sound as his law. The plantations made by the author and his father and grandfather from 1733 to 1834 are divided, as a modern expert would divide them, into woods of succession (clear cutting), woods of selection, and woods of ornament, while the future treatment for each class is laid down with admirable clearness.

Had such traditions had time to take root, a rational system of forestry would ere now have been common property. But they had not. Commerce gave place to sport. Cheap foreign timber must share with the pheasant the blame for this disastrous change. The old plans were dropped. Even the habits of the various species were forgotten. We come to the doleful period of spruce under-cover, when the rabbit was welcomed to the woods; when oaks had to be gnarled and conifers feathered to the toes; when the laird acknowledged no duty to his plantations except to make sure that nothing injured the side branches of his favourites, and that no timber ripe for

felling was touched by the axe—unless, indeed, he were short of money, in which case everything was felled at once.

There were exceptions, no doubt. Here and there a laird with clearer eye than his neighbours saw that there was something wrong and ridiculous in this kind of management. Here and there a worthy forester made up his mind to give his employer better woods than he asked for or deserved, and did good sound work in the light of his own common-sense and observation. But taken all round, the last fifty or sixty years of the nineteenth century were barren years for forestry, and the arts of civilisation scarcely declined more steadily in Morocco than silviculture did at that time in Scotland.

### *A Revival.*

Now for fifteen years a revival has been stirring. The Royal Scottish Arboricultural Society, founded in 1854, has been the focus of this movement, and it has had a steady friend in the Highland and Agricultural Society. The movement owes most to four men, all happily still to the front: Mr John Nisbet, the writer whose books first opened our eyes; Colonel Fred. Bailey, the first teacher of scientific forestry in Scotland, and now editor of the R.S.A.S. 'Transactions'; Mr Grant Thomson, who, breaking through the bad traditions of the day, developed a great forest in the Highlands on lines strictly scientific and commercial; and Mr R. C. Munro-Ferguson, the missionary of forestry in Parliament, who, at Novar and Raith, has steadily practised what he preaches. At this moment when the State, late in the day, is coming to the rescue, it is well to remember the services which these men have rendered to Forestry, perhaps with less encouragement than they would have received in any other country in the world.

### *Existing Woodlands.*

The woodland area of Scotland is given in the "Returns" of 1905 at 868,409 acres. This is small compared to that of other countries, but it is still considerable in itself, and common-sense requires that it should be considered before we discuss new projects of afforestation. Our woodlands are with few exceptions badly managed. In some cases they are entirely neglected. In others they receive attention more deadly than neglect. On many estates the area of woodland has never been accurately measured. On many more no attempt has been made to measure the crop of standing timber or to gauge its annual increment. Very rarely indeed is there anything of the nature of a working plan.

Now, a working plan is the very soul of silviculture. In this industry the margin of profit is rarely wide. The facilities for muddling away the profits are very great. The crop may take anything from 100 to 200 years to ripen, and all that time the cost of early mistakes is mounting up at compound interest. Where mistakes are so dearly expiated, it is impossible to be too business-like. In this as in any other business, efficient and economical management is only possible when the work follows year after year a regular routine. In this as in any other business, a good price can only be obtained when the purchaser can rely on a regular supply and an even quality. It is therefore necessary that the woods on any estate, or group of estates (small estates might often combine with advantage for this purpose), should be designed to ripen in regular succession. A regular yield can only be attained by a working plan. It should therefore be the first object of any measure of development to get existing woodlands equipped as soon as possible with this essential preliminary to success. For this two things are necessary. First: the best expert advice to make these working plans. There is room for three or four such expert advisers in Scotland. Second: a supply of working foresters trained to realise the value of expert advice and working plans, and competent to carry them out. We have got to manufacture these two classes of men. The machinery to make them is one of our most urgent needs. It is discussed below.

### *Lairds and the State.*

One word before we leave this part of the subject on the relation of private proprietor to the State. Practically the whole of the existing woods in Scotland belong to private proprietors. There can be no improvement without an effort on their part. But there is here a striking difference between this and other countries, which the reader will do well to keep in mind. In France, Germany, Belgium, and indeed in most if not all European countries, though private forests largely predominate, the State controls great areas of wood belonging to itself or to public bodies, and draws a regular revenue from the sale of timber. The few Crown forests in England (there is none in Scotland except the new venture at Inverliever, a genuine forest venture, which does credit to the sporting instincts of the Office of Woods and Forests) have not been hitherto conspicuous for good management. They have been regarded, and perhaps rightly regarded, rather as playgrounds. Private proprietors have therefore lacked here the example which they have had in other countries—an example from:

which private forests abroad have on the whole derived great benefit. The question of money advances from the Treasury for new schemes of afforestation will be touched on later. Apart from these, the State cannot be expected to do more for the private proprietor than provide the opportunity of education and set a good example. When these wants have been supplied (for suggestions see below) there will still be a great deal that he must do for himself.

### *Co-operation.*

First of all, the laird will have to learn to co-operate with his neighbours. A society has lately been formed for this purpose.<sup>1</sup> The openings for co-operation are numerous, including the marketing and utilisation of timber, the purchase and exchange of plant and materials, the provision of expert advice for measurement and valuation, and the exchange of information regarding the use of mechanical appliances and tools. It is hoped that when regular supplies can be guaranteed in various districts the timber merchant will find it worth while to pay more attention to home-grown timber. It is also hoped that the home nurserymen, when plants are ordered in large quantities a year or two in advance, will be able to supply plants at a lower price than is now possible.

### *Rates and Taxes.*

It is sometimes thought that rates and taxes oppress silviculture. In England the rates are irregular and often cruelly heavy, but there is little room for complaint in Scotland, where they are uniformly levied on the agricultural value. The collection of death-duties used to be extremely oppressive. The heir had often to pay on what he could not realise. Under the Budget of last year payment was postponed till the cutting or sale of the crop, and all outgoings for planting and maintenance reckoned at compound interest are allowed to be deducted. If the collectors of Inland Revenue carry out this provision loyally, it will afford real relief; but it is a matter which must be closely watched, and it would be rash to prophesy how it will work out. There remains one way in which the death-duties may directly discourage planting—*i.e.*, by increasing the capital value of an estate so much as to bring it into a higher grade and increase the scale of payment on the whole estate without any corresponding advantage to the owner. This objection will only occur when the value of the estate happens to

<sup>1</sup> The Landowners' Co-operative Forestry Society, 122 George Street, Edinburgh.—Mr George Scott Elliot, Secretary.



be near the border-line or the plantations are on a very large scale. In such cases the result will be disastrous. It is worth considering whether, in the interests of afforestation, it would not be sound policy to exclude growing timber altogether in calculating the total capital value.

### *Afforestation.*

The improvement of existing woodlands, while it demands the first attention, must necessarily be gradual, and there is no reason why the more popular project of afforesting waste lands should wait till it is complete. A recent Royal Commission advised that all plantable waste land below 1500 feet should be planted at the rate of 150,000 acres a-year. No sane man would dream of following that advice. No doubt, with the present low price of land there is a large extent of rough pasture which it would pay to afforest. Many people believe this is the only practicable way of increasing the population in the Highlands. How, then, ought we to begin?

To make sure of success, ventures in afforestation must be confined at first to the most promising localities, especially if public money is to be sunk in them. The first step should therefore be to ascertain, by a rough survey of the whole of Scotland, which are the districts most suitable for afforestation, and what are the most suitable forest centres. Until we have this information we can neither judge of the dimensions of the problem nor ascertain the right place to begin. The configuration of the country, divided as it is into separate glens, renders such a survey comparatively easy, especially in the Highlands, where the most suitable forest sites are likely to be found. In selecting and classing them, soil, value of land, climate, transport and water-power, will all have to be taken into account, but the survey need not be very elaborate. A survey of this kind will result in a map with green patches wherever there are large areas of plantable ground of sufficiently low value. These green patches will probably be neither so numerous nor so large as most people expect. When any one of these potential forests comes to be afforested, a survey in detail and a regular forest project and working plan will have to be made for that particular area. Where whole farms can be planted, as, for example, at Inverliever, this task will be comparatively easy. In other cases, where a vast hinterland of unplatable sheep ground and deer forest is attached to the area which it is proposed to plant, the problems to be faced will be much more complicated. That they are not insoluble will soon be apparent in the survey of a sample area in the county of Inverness which is being made, under Lord Lovat's guidance,

for the Royal Scottish Arboricultural Society. This will be published presently, and will form the most complete and reliable study of Highland afforestation yet attempted.

It would be idle to discuss these problems on the eve of the appearance of so important a document, but there is one point which the reader must keep in view. The preliminary survey is equally necessary whether the new forests are to be planted by individuals or by the State or by a combination of both. Probably each of these methods will in certain cases be found the best, and each should be given fair trial. When the map with the green patches is published, the people who live in the green patches will begin to consider whether each particular forest can or ought to be realised. In a few cases, perhaps, the proprietors may have the means and the inclination to embark on the venture themselves. In such cases the Government should help them with advice and supervision if they desire it. In other cases the will may be there but not the way. If the State is satisfied that the venture is sound, it might in such cases advance the money, securing it on the crop, and if necessary on the estates, and keeping the management of the forest under strict supervision as in France the State does that of the communal forests. In other cases, again, where the hills are not too high and whole farms can be planted, the State might purchase the land and create its own forest, as H.M.'s Office of Woods is doing at Inverliever.

One word on a question dear to the newspapers—the elevation to which planting can be profitably carried. If the policy sketched above were adopted, this question would scarcely arise. The essence of this policy is to run no risks. In the bare Scotland of to-day, though trees do in places thrive well above 1000 feet, it is certain that they thrive better and grow faster below that level. It is pretty certain, therefore, that the green patches of the survey will only in rare cases overstep that limit, and may often stop short of it. Experts assure us that when the lower slopes are clothed, it will be possible to advance the forest margin step by step until our hills, like the Vosges, are completely wrapped in wood. But that is for our grandchildren.<sup>1</sup>

### *Practical Suggestions.*

If this rambling introduction has served its purpose, the reader will now have some idea of the kind of changes in which

<sup>1</sup> Students of afforestation should consult Mr A. C. Forbes's book on 'The Development of British Forestry' (Arnold, 1910). The critics who have attacked this work for the looseness of its scientific treatment forget that the argument for afforestation in Great Britain and Ireland does not rest on *a priori* reasoning as to soil and climate, but on actual experience, small perhaps in scale, but distributed over the whole country.

the development of forestry ought to consist. Let us now turn to the initial practical steps necessary to promote these changes.

### *A Survey.*

First comes, without question, the survey, to ascertain the promising forest sites and their extent. It ought to have been made years ago. No Government would, one hopes, be so unbusiness-like as to take up afforestation without this necessary information. To be consistent, the survey will have to be in charge of one officer or group of officers for the whole country. It will therefore take some time to make, and ought to be put in hand at once. The Development Commissioners might very wisely allot a small annual grant of £500 or £1000 to this object for a limited number of years.

### *A Demonstration Area.*

Next we must have a Demonstration Forest. This means a forest run by the State for the purpose of education and research. Nothing else can provide the experts and trained working foresters we need. It will be necessary for the Government to acquire an estate for the purpose at a price which will admit of a good return on the plantations. "It is desirable that the forest should be central and accessible, and essential that it should contain a considerable area of growing timber of different ages. Inverliever, unfortunately, fulfils neither of these conditions. An area of 10,000 acres would be sufficient. Suitable estates have recently changed hands at reasonable prices. The standing crop will not and need not be perfect. The first lesson the forest will have to demonstrate is the conversion of bad woods into good. The forest should from the beginning be worked on a regular plan, thus providing another much-needed lesson. Accurate records and accounts should be kept, and the results of the numerous desultory experiments which have been made throughout Scotland should be collected and compared, and their progress watched. The science of British silviculture, for which the materials already largely exist, will thus be gradually built up."<sup>1</sup>

### *A Forest School.*

A Forest School must be attached to the forest. The forest and school should be under the same director. Here two

<sup>1</sup> Letter of the Royal Scottish Arboricultural Society to the Development Commissioners, 10th September 1910.

grades of students would receive instruction. At present forestry and the kindred sciences are taught at three of our Universities—Edinburgh, Glasgow, and Aberdeen—and in the Agricultural Colleges affiliated to them. There seems to be no reason for interfering with this arrangement so far as the higher grade of students is concerned—that is, the students who take a degree. These men would, after completing their scientific studies at the University, go through a course of practical Sylviculture at the Forest School. Here they would be under the special care of the director. He would take them into his confidence in all that concerned the management of the Forest, and employ them to assist in research work. The writer reckons that we shall have need of some fifteen highly-trained officers of this class in Scotland in the near future. In that calculation he includes the teaching staff at the University centres, the Director of the Demonstration Forest and his assistants, experts to advise private proprietors, and a small staff for the inspection of any schemes of afforestation the Government may decide to carry out or finance. In addition to men destined for home employment, there would be, as at present, Scots students training for the forest services in India and the Colonies. A good many land agents who expect to have charge of large Highland estates and a few landowners would also welcome the chance of attending this higher course of practical Forestry, after taking their degree at the University. Until the Demonstration Forest can be brought into complete order, these higher students will have to get part of their training abroad, or at least pay visits to the forests of France or Germany. A forest in full swing is a thing that few imaginations can grasp without the aid of the eye.

The other class of students will consist of the apprentices actually employed in the forest. The evening classes now held for apprentices at the University centres do not meet the case, though they are much better than nothing, and have been loyally carried out by the lecturers in the face of great difficulties. The men have to work for their living, and cannot attend the classes unless they happen to have employment in the neighbourhood. The attendance is consequently small. The teaching is not backed up by the day's work. In fact, it is more likely than not that the work the students have to do conflicts with every principle they are taught. We have seen above the urgent need for competent men of this class, especially in the case of existing woodlands, over which they have in many cases absolute control. A forest school of carefully chosen working apprentices would furnish exactly the men we want. They would work in the forest in the day and study in the

evening, as they do now ; but their work and their studies would harmonise instead of conflicting. Men so trained would be eagerly snapped up whenever they left the school, and would soon effect an immense improvement in the management of private woodlands.

### *Forest Gardens.*

There is one other pressing need. The three teaching centres—Edinburgh, Glasgow, and Aberdeen—have frequently made application for Forest Gardens, and these gardens ought to be as soon as possible provided, either by purchase or lease. Their equipment will not cost much, and they need not extend to more than a few acres. They must be clear of the smoke of the town, but should be easily accessible by rail or tramway.

### *Conclusion.*

The practical proposals described above are those advocated by the Royal Scottish Arboricultural Society. There is every hope that they may be taken up at once. Forestry is one of the prime objects of the development grant. The Commissioners, who have allotted £40,000 to horse-breeding, may be reasonably expected to find funds for these three modest proposals. An annual grant of £10,000 would probably meet all the expenses, including interest on the price of the Demonstration Forest. The time has come when the whole subject of forestry ought to be placed under one authority, as it is in every other civilised country, but this is not the view of the Government. Fortunately the Development Commissioners will for the present supply in some degree the necessary link. The Scotch Education Department has offered its assistance. This Department has no equipment for dealing with the subject, but the educational character of the proposals renders its assistance welcome and opportune. It can only succeed by delegating the administration of any grant it may receive from the Commission to a committee of competent men who have made a study of the subject.

Under the circumstances it would be absurd to deny that the future of forestry in Scotland is still full of anxiety. A scheme of development for a highly technical industry, administered by a department wholly ignorant of the subject, may easily result in something as futile and wasteful as the Congested Districts Board. But there is hope. We are going to have something instead of nothing. Looking ahead twenty years, the writer in sanguine moments imagines Scotland supplied with forest experts and trained woodmen, private woods brought under working plans and beginning to pay, mills

springing up to utilise the regular supplies of timber, and new schemes of afforestation beginning to take shape here and there under conditions which leave no room for failure. All this is well within our reach if only we go the right way to work.

## COST OF WINTER FEEDING IN MILK PRODUCTION.

By Principal DUNSTAN, Agricultural College, Wye, Kent.

### *Milk-Selling versus Butter-Making.*

OF the many branches of agriculture which are practised to-day in Great Britain, that of whole milk production is one of the most remunerative, and those who would advocate the more extensive manufacture of butter to be put on the market in competition with foreign butters, often ignore the fact that these foreign countries would not be exporters of butter if there were a demand at home for whole milk to anything approaching the extent of the British home demand. Were the ordinary dairy-farmer who is now engaged in a whole milk trade to divert his activities to butter production, he would probably have to surrender a great part of the profits of his business, and in most cases would incur an actual loss. At present the total amount of imports of milk into this country is inconsiderable, and the milk-farmer does not feel the stress of foreign competition to nearly the same extent as the corn or meat grower; and when some years back there was a complaint by some of the shorter-sighted dairy-farmers against the prohibition by the State of the addition of preservatives to milk (and it must be remembered that preservatives may be also a cloak for the production of milk under dirty conditions), it was not realised by them that if preservatives were allowed, the foreigner could become a milk exporter, a business he could not enter upon unless some artificial means were adopted for preserving such an easily deteriorating and perishable food material as milk.

Another popular advantage in favour of the milk-producing business is the quick and regular monetary returns which are forthcoming. The regular monthly or other periodical settlements provide for the payment of wages and other outgoings on the farm; whereas in corn-growing, meat production, and other departments of farm production, six months or more may

elapse between the commencement of the operation and the sale of the product.

### *Cost of Food in Milk Production.*

The cost of production of milk at the farm is a matter of the greatest importance to a milk producer. He has a wide range in choice of food-stuffs both home produced and foreign supplied; and he must bring his knowledge and experience to bear to decide which materials, and what quantities of these materials, should be employed so as to produce the best and most economical result, and the skilful feeder is not only a competent judge of these points but also of the manner of the feeding and of the mixture and general preparation of the foods.

Food is of course but one of the items of cost to be considered, but it is the one to which special attention has been directed in this inquiry,<sup>1</sup> which is an attempt, it may be a somewhat rough one, to co-ordinate the methods of a number of milk producers, and to draw from them some conclusions which may influence dairy-farmers to consider more accurately the cost and general economy of the system they are pursuing, when in milk and dry, in the winter feeding of their stock.

The chief factors in the cost of production of milk are as follows: Cost of Food, Litter, Labour in feeding, Attendance and milking, Illness and calving risks, Depreciation in value of cow, Interest on capital, Expenses (carriage, &c.) on sale of milk; whilst the returns may be stated under the following heads: Sale of milk, Value of calf, Value of manure.

### *Value of Milk Records.*

The question of milk records to which attention has been often drawn in this Journal is of course intimately bound up with the cost of production. A manufacturer who wishes to satisfy himself of the economical condition of his system of manufacture divides his total cost of production by his output, and arrives at a figure per article produced which may or may not satisfy him, and cause him to alter his practice; but the calculation is not so simple in the case of the dairy-farmer, since he is dealing with a "milk manufacturing machine," the cow, which possesses an individuality of which some account must be taken, and which is extremely susceptible to the many variations in the conditions of management, &c., under which she

<sup>1</sup> An inquiry conducted by Mr James Mackintosh for the Agricultural College, Wye, into the cost of food in the production of milk in the counties of Kent and Surrey.

lives. But this varying individuality supplies an even more cogent reason for a record to be kept of the yield of a cow, for unless the yield is known with a considerable degree of accuracy it cannot be determined whether or no the animal is paying for her keep, and we venture to think that there are in many dairy farms animals, the cost of whose maintenance and attendance is not recouped by the monetary return from their produce.

Another object of the keeping of milk records is the obtaining of the information they yield to a farmer to enable him to build up a strain of cattle of high milking qualities, and this can only be done when the performances at the pail of both the dam and the sire's dam are known to be of a satisfactory nature. The question of quality, again, is one which should be studied by dairy-farmers, and by periodical individual tests of the milk of the members of the herd, those animals which consistently yield a milk of low quality can be weeded out.

The influence of food on both quantity and quality will be dealt with at a future time. It may, however, be remarked here that there seems to be little doubt that quality, perhaps more than quantity, is more or less an individual characteristic of the cow, and is influenced to a less extent than is often imagined by the food. Every cow probably has a certain maximum of both quantity and quality to which she can attain, and it should be the aim of the feeder to supply her with that amount and kind of food which will enable her to produce that maximum for as long as possible. If the expenditure required to produce this result is not met by the returns, then either the feeding should be reduced to the economical limit or the animal discarded for a more profitable one.

#### *Daily Milk Yield of 1957 Cows.*

Commencing, then, with the daily yields (which can be translated into yields during the milking period—40 weeks—by multiplying by 280), we find the following results from 60 farms:—

Number of farms on which the			
average daily yield was under	2 gallons	12	(20 per cent).
" " "	2 to 2½ galls.	35	(58·3 per cent).
" " "	over 2½ "	13	(21·6 per cent).
The lowest daily yield was	1·37 galls.		
" highest	3·41 "		
Average daily yield" (1957 cows)	2·24 "		

The profitable character of milk-farming is, of course, not dependent entirely on the milk-yield of the cows but upon



the cost at which that yield is obtained. The law of diminishing returns holds in milk, as in all other forms of production, and a high yield may be obtained at a cost which leaves no balance on the credit side, whilst it might be possible to obtain a lower yield at a less expenditure and at a profit.

*Cost of Food per Cow and per Gallon.*

First, then, let us examine the average cost of food per cow per day during the period when she is in milk, and the results from 66 farms carrying 2097 cows are as follows:—

The cost was under 1s. per day on 10 farms (15·1 per cent).			
From 1s. 0d. to 1s. 3d.	"	"	21 " (31·8 per cent).
" 1s. 3d. to 1s. 6d.	"	"	23 " (34·8 per cent).
Over 1s. 6d.	"	"	12 " (18·1 per cent).
The lowest cost per cow per day being 7·8d.			
The highest " " " 24·1d.			
The average " " " 14·88d.			

But the cost per cow is no index to the net returns of the business, as the cost of production per gallon of milk must be arrived at. The above figures are, however, most interesting as showing the wide variations in the cost of keep, and may perhaps call attention to what must be an extravagance in feeding on some of the farms.

The cost of production of a gallon of milk on 59 farms is next to be considered, and the figures are as follows:—

The cost was below 6d. per gallon on 18 farms (30·5 per cent).			
From 6d. to 7d.	"	"	11 " (18·6 per cent).
" 7d. to 8d.	"	"	17 " (28·8 per cent)
Over 8d.	"	"	13 " (22·0 per cent)
The lowest cost per gallon was 3·83d.			
The highest " " 10·54d.			
Average cost " " 6·58d.			

Here again the wide variation in cost of production is worthy of remark. There is an opinion that high feeding is always remunerative as regards producing quantity and quality, but this is not borne out by facts. In certain cases where newly calved cows are bought in, forced during their milking period and sold fat at the termination of this period, the feeding has a double object, and the conditions are not those of an ordinary milk producer. In such cases high feeding may be justified, but in the case of an ordinary dairy cow which is not a mere penny-in-the-slot machine, in which the more pennyworths of food you put in, the more gallons of milk you take out, it is necessary to find her point of economical productiveness and to keep her at that point.

If we combine the results obtained from the figures already given we get the following conclusions :—

Where the yield is—			Daily cost per cow.		Daily cost per gall.
under 2 galls. per day	12 farms	333 cows	14.16d.		7.97d.
2 to 2½ " "	34 " "	1185 " "	14.68d.		6.59d.
over 2½ " "	12 " "	375 " "	15.78d.		6.05d.

or as the daily cost increases 11.4 per cent with the greater yield the cost per gallon decreases 24 per cent—the inference being that with a high milk-yield the cost of production of a gallon of milk is less than with a low milk-yield.

But another point is brought out by the following figures where the basis factor is the cost of food per gallon of milk. Analysing the returns from 59 farms and 1924 cows :—

	Cost of food per gall.	Per cent increase of cost.	Yield per cow.	Per cent decrease in yield.	Cost of food per cow.	Per cent increase of cost per cow.
	<i>d.</i>		<i>galls.</i>		<i>d.</i>	
1	4.4	...	2.40	...	10.59	...
2	5.5	25.0	2.38	.83	13.12	23.8
3	6.7	52.2	2.30	4.1	15.42	45.6
4	8.2	86.3	1.84	23.3	15.13	30.0
5	9.2	109.0	2.09	12.9	19.31	82.3

Here we see that the cost of food per gallon of milk is influenced more by the cost of the daily ration fed to the cow than by the decrease in the milk-yield.

An examination of the figures in groups 1 and 5 of the above table would seem to show that at all events for the cows in this inquiry the extra feeding does not produce an economical result.

### *Prices of Food.*

The question of the values placed upon the food-stuffs used is of course an important one, and obviously in the interpretation of any conclusions these values must be taken into account. The prices used are as follows: hay, £3 per ton; mangels and swedes, 10s.; turnips, 8s.; oat straw, 40s.; barley straw, 25s. These figures are at the cow-house. The labour in the preparation of the foods is not included, as this must be debited to the labour item in the cost of production account. These figures (and in fact any figures) will be criticised as too high or too low, but they are the mean of the estimates of value which were supplied by the farmers, and these estimates varied between the following limits: hay, 50s. to 70s.; mangels, 6s. 8d. to 15s.; oat straw, 35s. to 60s.

It is of course obvious that if we put a high value on home

produced foods, the farm profits by their production, and the conversion of these foods into milk does not appear profitable: on the other hand, too low a value may show a loss on the production of the crop and too great a profit on the manufacture of milk.

In making an estimate, also, regard must be taken of the unavoidable waste in the root clamps, in outsides, &c., of haystacks, which waste increases the cost of the food-stuffs actually consumed by the cattle. In the case of purchased foods the actual price paid is taken.

### *Quantities of Food Given.*

An analysis of the returns of the composition of the rations fed shows that whilst cakes and meals are fed in quantities of from  $5\frac{1}{2}$ - $7\frac{3}{4}$  lb. per day, roots are consumed in quantities of from 73 to 109 lb., and hay from  $8\frac{1}{2}$  to 20 lb. It is in these latter food-stuffs, hay and roots, that extravagance in feeding undoubtedly occurs, and it would seem undesirable, from an economical point of view, to feed a greater quantity than 60-70 lb. of roots per cow per day. In the case of hay, long hay is often fed practically without regard to quantity, and a very serious addition to the expense of milk production is incurred without corresponding result.

An examination of the figures from 60 farms and 2038 cows shows that where an average quantity, 20.3 lb., of hay was used on 22 farms and 519 cows, the daily cost of the cows' ration was 17.4d., and the cost of production of a gallon of milk 7.77d.; whereas on 30 farms (1324 cows), where the average quantity of hay was 7.8 lb., these figures were 13d. and 6.16d. respectively, a reduction of 25 per cent and 22.3 per cent respectively. It is probable that the dairy-farmer would get equally satisfactory milk-yields at a reduction of cost if less long hay were fed, and if the bulky fodder consisted of sound straw and chop with a foddering once a-day of long hay.

In the case of concentrated foods, undoubtedly too much reliance is placed on the effects of these foods on both quantity and quality of milk-yield, and too little accurate knowledge is obtained of the individuality and capabilities of the cow. Given a cow whose performances at the pail, as evidenced by the fat content and weight of her yield, are unsatisfactory, no amount of high feeding will make a substantial difference in these respects, and the money spent in concentrated food-stuffs will be wasted unless her previous feeding has been ill-balanced and uneconomical. It is of course an axiom in the feeding of dairy stock with concentrated foods that such foods should be reduced in quantity according to the decline in the milk-yield,

*Conclusions.*

Summing up the conclusions from this preliminary inquiry, the following points are worth consideration:—

(1) The exceedingly wide variation (*a*) in the cost of the daily ration fed; (*b*) in the cost of production per gallon of milk.

(2) The relatively small number of farms on which it is a regular practice to accurately record milk-yields (18 farms out of 60).

(3) The unnecessarily large quantities of hay and roots which are fed (13 farms were found to feed more than 100 lb. of roots per cow per day).

It is not to be expected that a ration in the form of a "prescription" can be advocated, as one suitable for all cattle, all soils, and all conditions. Each man must judge for himself the foods which he can utilise to the best advantage and calculate the cost of his daily ration, watching his cows to ascertain whether the live-weight is being greatly increased or decreased. But all this care will be of little use unless the farmer at the same time keeps a record by daily or weekly weighing of the milk-yield of each cow in his herd; and this practice cannot too often be insisted upon, as not only does the farmer thereby know which cows are profitable, but by saving calves from these cows got by a bull of good milking strain, he can improve the milk-yield of his herd, and consequently his own profits, without any extra expenditure on food-stuffs, merely causing a very little extra labour, which is, after the custom of weighing has been in force for a week or so, negligible, and which stimulates the milkers to a beneficial rivalry in comparing the performances of the cows with which they have to deal.

## INSECT PESTS IN 1910.

By Dr R. STEWART MACDOUGALL, M.A., F.E.S., Consulting Entomologist to the Society.

## A NEW ENEMY OF SHEEP.

## PROTO-CALLIPHORA GRÆNLANDICA, Zett.

THIS fly comes near the greenbottles (*Lucilia*) and the blue-bottles (*Calliphora*). It differs from the greenbottles in not having a bright metallic thorax and abdomen, and from the

bluebottles in having the parts below the cheeks and the eyes black, with black hairs. Further, in *Proto-calliphora* the 3rd longitudinal vein of the wing has little spines on most of its first section, and the wings, when the fly is at rest, are held parallel to the body, whereas in *Calliphora* the 3rd longitudinal vein is spiny at the base only, and its wings, when the fly is at rest, are held at an angle to the body.

There are two species of *Proto-calliphora*—viz., *azurea*, the less common, and *grænlandica*. The former, blue-green in colour, is credited with laying its eggs on nestling birds. *P. grænlandica*, a black-blue fly, is stated to lay its eggs on putrefying animal matter, but in the past year an interesting feature in its biology has been proved, showing that the fly "strikes" live sheep, and that its maggots, like those of *Lucilia sericata* and *Calliphora erythrocephala*, are harmful to the sheep.

On May 6, 1910, I received from Mr A. Gordon Shirra Gibb maggots taken on May 4 from a live blackfaced ewe going on old grass pasture. The early date is interesting considering that April 1910 was one of the coldest Aprils on record. I fed the maggots on mutton, and these having completed their growth and pupated, I obtained in the last days of May and on June 1 and 2 over twenty of the adult flies.

Later, I had a record from a friend of his having found this fly in great numbers in the month of August on the windows of an electric-lighting station near Dingwall.

#### THE LARGE LARCH SAWFLY (*Nematus Erichsoni*).

New records of the presence of this enemy of Larch continue to come from different parts of Scotland. During the past summer the caterpillars were sent to me for determination from Dumfriesshire, Kinross, Forfarshire, Perthshire. Careful observation will probably result in new records. Associated with the Large Larch Sawfly was in some cases another smaller species—*Nematus laricis*. In Kinross the *N. laricis* caterpillars were found on the trees well into August.

The females of *N. Erichsoni* greatly outnumber the males: out of 166 adults which I bred out from cocoons received from different quarters, 165 were females. This disparity in numbers between the sexes suggested that parthenogenesis was common, and this I proved experimentally during the summer when I reared from virgin eggs many caterpillars, a number of these leaving the plants and making their cocoons early in July.

Another interesting feature in connection with the Large Larch Sawfly is that in districts in the north of England, where for some years the caterpillars have been very numerous

and destructive, ichneumon and tachinid parasites are making such headway as to raise hopes that in such places the Large Larch Sawfly will be checked. From a large sending of cocoons I obtained over 60 ichneumons and 20 tachinid flies.

### DERMESTES VULPINUS.

Last spring a specimen of wood cut from a beam used in the floor of a guano factory was sent to me for report. The timber, put in only a year before, when it was believed to be perfectly sound, was, when it reached me, completely riddled with holes and useless. On examination I found a large number of the pupæ and adult beetles of *Dermestes vulpinus*. This insect and its larva are well-known enemies of skins, hides, natural history specimens, corks, bones, and wood. It has also been taken from mummies. In stores, the ham or bacon beetle, *D. lardarius*, a related species, is sometimes found.

*D. vulpinus* is a most destructive species, and should be exterminated when noticed.

The beetle varies in size between a quarter and half an inch. It is elongated and flattened; the upper surface is black or grey-black or brownish; the under surface is white, owing to a dense mass of hairs; along the sides are black spots.

The larva is a six-legged grub, half an inch long when full grown, and covered with hair; the larva narrows to the tail end. The length of the life-cycle varies with the environment from some weeks to months.

Where the pest is found in numbers the store or building should be fumigated with disulphide of carbon, 1 to 2 lb. to 1000 cubic feet of space. The store would require to be made air-tight and kept closed for forty-eight hours, the disulphide of carbon being laid out here and there in shallow dishes. The fumes, heavier than air, pass downwards. No naked light must be brought near. Before entry to the store after fumigation the windows and doors should be kept open some time for ventilation. Fumigation with hydrocyanic acid gas would also clear a store, but the work would need to be undertaken by someone who understood the risks to life in the use of this fumigant.

### TWO ENEMIES OF RASPBERRIES.

The Raspberry Beetle (*Byturus tomentosus*) is an enemy of raspberries and blackberries, and in England has proved very destructive to loganberries. The damage done is twofold: the adult beetles destroy the flower-buds and the flowers and their grubs spoil the fruit. The beetle is small, measuring  $\frac{1}{8}$  inch.

It is black in colour, with a grey or yellow pubescence very marked in fresh specimens. The legs and the antennæ are reddish yellow.

The larva is a grub with brown biting jaws; its colour is yellowish, with brown or brown-yellow markings on the back; it has 6 thoracic legs and at the hind end 2 spines with a tubercle or process below. The full-grown grub measures up to  $\frac{5}{8}$  inch.

The beetles are found from May onwards through June; they are excellent fliers. They lay their eggs in the blossom, typically one egg for one blossom, and later the grubs are found tunnelling in the torus and spoiling the fruit. When full-grown the grubs leave the fruit and make a cocoon in the soil below the plants or in cracks in the bark. The winter is passed in this stage, and the beetles issue in the next year as above.

*Treatment.*—When the beetles are found on the plants it is a wise measure to have them shaken off the plants on to tarred sacks, or into vessels containing paraffin. Where there has been attack, pruning and old canes likely to have been used for the cocoon stage should be burned. The surface-soil below the stacks should be buried deeply or hoed, in order to destroy the cocoons.

The caterpillars of the Raspberry Moth (*Lampronia rubiella*) are very destructive, their damage being well known to raspberry-growers. The damage is done to the buds and the shoots in the spring and summer following the year in which the caterpillars were hatched. The moth is a very beautiful one, yellow-brown in colour with yellow dots and spots on the forewings; the somewhat lighter hind wings have light fringes. The moth measures  $\frac{1}{4}$  inch in length, and almost  $\frac{1}{2}$  an inch in spread of wings.

The caterpillar when full grown measures  $\frac{1}{4}$  inch; it is red in colour, with the head black or black-brown, as is also a plate on the segment behind the head.

The pupa measures about  $\frac{1}{4}$  inch in length; it is red-yellow, with the coverings of the wings paler; on the back of the last segment is a spine.

The moths lay their eggs, in summer, on the raspberry flowers, and the caterpillars on hatching live at first in the receptacle of the fruit. With their growth not complete they leave the fruit and pass into a hibernating stage under cover of a whitish silky cocoon. The cocoons are in the ground below the canes or in crevices in the rougher bark. In the next April the caterpillars issue from their winter quarters, reascend the canes and bore into the buds, which in consequence fail to develop. The caterpillar also tunnels the shoots below the bud. When full-grown the caterpillar pupates in the hollowed-out pith of the cane, and

after a pupation stage of three weeks the moth issues. The moths are found flying at the end of May and in June.

*Treatment.*—Cut off, from the end of April to the middle of May, infested canes, and burn them with the enclosed caterpillars or pupæ. Advantage should be taken of the fact that the caterpillars may be wintering in the soil at the base of the plant: the caterpillars should be disturbed and destroyed before they do their worst work in the next season, or the surface-soil should be buried so deeply that it will be impossible for the buried caterpillars to reach the surface again. An excellent measure is coating or painting the bases of the canes with some sticky composition, *e.g.*, soft soap and paraffin, in order that caterpillars issuing from their winter quarters may be prevented from ascending the plants to complete their growth. This painting of the lower parts of the canes should be done not later than the month of March.

## ORIGIN OF THE CLYDESDALE AND OTHER HEAVY BREEDS OF HORSES.

By J. COSSAR EWART, M.D., F.R.S., University of Edinburgh.

### *Principles of Stock-breeding.*

THE most important and most difficult part of the stock-owner's work is selecting mates for the females which form the bulk of his flocks and herds. Of all the rules laid down for his guidance the soundest is perhaps the one which says, "Mate the best with the best, avoiding close affinities." But, safe as this maxim appears, it only expresses half the truth. To be complete, in addition to urging the breeder to avoid close affinities, it should warn him against the possibility of inducing reversion. Hence this favourite maxim might well be altered to "Except when making or modifying a breed, mate the best with the best, but avoid close affinities and crossing different strains and different types of the same strain."

The breeder must avoid close affinities lest vigour be lost, but, unless the vigour is ebbing, he must also avoid crossing distinct types and strains, otherwise the most highly-prized points may be lost. Evidence that in-and-in breeding reduces the vigour, and that crossing distinct types and strains leads to the loss of traits gained by careful and long-continued selection, is afforded by the English race-horse.

It is sometimes said that inbreeding neither leads to loss of



size, vigour, nor of fleetness in thoroughbreds. This view, however, is not supported by experiments made in America and Germany as well as in England. Some years ago Lord Derby carried on inbreeding experiments with race-horses. For nine generations he bred brother and sister (descendants of "Papillon," the dam of the Derby winner, "Sir Peter"). The result, as forcibly put by Von Oettingen, "of the inbreeding mania of Lord Derby was a distinct fiasco,"—it supported the view obtained from a study of Goo's tables (which constitute the roll of honour for the English race-horse), in which one looks in vain for the name of a closely inbred thoroughbred.

But the offspring of unrelated thoroughbreds have as little chance of winning races as closely inbred thoroughbreds. As the number of "free generations" (*i.e.*, the number of generations in which the same sire or same dam does not appear in both pedigrees) increase the chances of success diminish. A thoroughbred with four or five "free generations" has a chance of succeeding, but one with seven or eight appears to be severely handicapped.<sup>1</sup> The explanation of this seems to be that mating thoroughbreds with seven or more "free generations" is equivalent to breeding members of two different strains—a potent cause of reversion.

If, as often happens, two members of a breed produce inferior and mixed offspring because they happen to belong to different strains, it is not surprising that members of a strain which belong to quite distinct types fail to breed true. That members of the same breed sometimes profoundly differ is universally admitted—sometimes thoroughbreds out of the same dam and by the same sire differ both in make, colour, and disposition, as well as in speed and staying power. These differences are sometimes due to sporting (mutations), sometimes to characters being transferred from one breed to another, but in most cases they are due to reversion. If crossing of different strains and of different types of the same strain leads to variation either in new or in old directions, it follows that the stock-owner, in addition to directing his attention to pedigrees, should know as much as possible of the origin and history of the breeds he handles.

A breed may consist of different strains because of artificial selection, or because of differences in the environment, or because it includes several distinct wild races amongst its ancestors.

<sup>1</sup> In Stockwell, the "Emperor of Stallions," we have an instance of five "free generations," for though his dam ("Pocahontas") as well as his sire ("The Baron") were both descended from "Orville," there were two generations between "Orville" and "Pocahontas," and three generations between "Orville" and "The Baron."

All the domestic pigeons have sprung from varieties of the wild pigeon (*Columba livia*), while all the domestic rabbits are descended from varieties of the common rabbit (*Lepus cuniculus*), hence the numerous modern breeds and strains of pigeons and rabbits are almost entirely the result of artificial selection.

In some areas the coat of domestic sheep consists mainly of hair, and only weighs 2 or 3 lb., in other areas it may weigh over 40 lb. and consist of extremely fine wool; in some areas the tail of sheep is short and flat, in others it is long and loaded with fat; in some areas sheep have a pronounced "Roman-nose," in others the profile is straight. These differences, though partly due to artificial selection, chiefly result from differences in the surroundings.

### *Origin of Modern Horses.*

Are the differences in modern horses mainly the result of artificial selection and of differences in the environment, or are they mainly due to domestic horses having sprung from several wild species?

The great French naturalist, Cuvier, failed to see any essential difference between modern and extinct horses, and up to the end of last century most naturalists, following Cuvier, assumed "that the horse in all its various forms of development—from the dwarfish pony to the Percheron and the huge English cart-horse—was descended from a single wild species."

It is generally assumed that the fossil horse (*Equus fossilis*), from which some still believe modern breeds are descended, was a small animal with a large coarse head, relatively large teeth, and coarse limbs. When some years ago it was reported that a wild horse had been discovered in Mongolia, several naturalists at once took for granted that the "original" horse—the common ancestor of all the horses now living under domestication—had at last been discovered. But while during the nineteenth century most naturalists adopted the view that horses had a single origin—a view Darwin was inclined to accept,—it was once and again maintained that several wild species had contributed to the making of modern breeds. Hamilton Smith, *e.g.*, believed domestic horses had descended from five *stirpes* or species (the bay, the white, the black, the dun, and the piebald); while Sanson, a distinguished French hippologist, for a time held that modern breeds represented eight separate species. In Germany zoologists as a rule favoured the view that all the horses now living were derived from two varieties of *Equus fossilis*—an Oriental variety (*Equus caballus orientalis*), Arab like in make, and an Occi-

dental variety (*Equus caballus occidentalis*) with a large head and coarse limbs, like the common middle-sized modern horse of Germany. Some years ago Professor Ridgeway arrived at the conclusion that all the improved breeds of the world are a blend of a fine bay horse (*Equus caballus libycus*) evolved in North Africa, and of coarse, thick-set dun or white horses of Upper Europe and Upper Asia, allied to the wild horse (*Equus przewalskii*) of Mongolia.

### *Descent of Heavy Breeds.*

Let us now endeavour to ascertain whether the Clydesdale and other heavy breeds are descended from one or from several wild species. The late Professor Nehring, who made a special study of the Diluvial horses of Germany, came to the conclusion that the horse which inhabited Central Europe in prehistoric times was characterised by thick massive limbs, a long, narrow, coarse face, and by molars with complex enamel folds. This Occidental variety of *Equus fossilis* Nehring regarded as the progenitor of the heavy horse of Germany, sometimes known as *Equus caballus germanicus*.

It is doubtless true that Nehring's Diluvial horse had as complex teeth and relatively as coarse limbs as modern heavy breeds, but there is no evidence that this large ancient German race was characterised by a long coarse head, and was otherwise constructed on the plan of the modern Clydesdale.

Not only is there no evidence that any of the modern heavy breeds represent the Occidental horse of prehistoric times, there is no evidence that horses of the Shire and Clydesdale type could have been evolved from any one of the species which in prehistoric times inhabited either Asia, Europe, or Africa. Naturalists who adhere to the view that the modern wild and domestic breeds are all descended from a single species might say that the long, deep, convex ("Roman-nosed") face of modern heavy breeds is a product of domestication. But domestication, instead of increasing, invariably tends to diminish the size of the face. In the case of Arabs, artificial selection and domestication have conceivably led to an increase in the size of the brain and of the cranial part of the skull in which the brain is lodged, but instead of increasing, domestication has so diminished and refined the facial part of the skull that high-caste desert Arabs are now noted for their slender jaws and fine muzzle. If the examination of fossil bones and teeth affords no evidence of the existence in prehistoric times of a race characterised by a coarse head as well as coarse limbs, or even of a race from which horses of the modern Clydesdale type might have been derived by artificial selection, it must in the meantime be

assumed that Shires and Clydesdales and other breeds with coarse limbs and a long narrow coarse head are a blend of two or more wild species.

*Four possible Ancestors of Modern Breeds.*

From experiments, and by making use of new methods of study, it has now been ascertained that at least four wild species may have contributed to the making of modern breeds—viz., (1) a species (*Equus robustus*) adapted for a forest life, (2) a species (*Equus przewalskii*) adapted for a steppe life, (3) a species (*Equus agilis*) specialised for deserts and plateaus, and (4) a species (*Equus sivalensis*) adapted for a life in upland valleys. Of these four species, only one (*Equus przewalskii*) now survives in a wild state.

Though Cuvier failed to detect any essential difference between either fossil or recent horses, it has been demonstrated that both extinct and recent horses decidedly differ in their skull, teeth, and limbs. In the Equidæ, though the cranium varies but little, the face differs profoundly: it may, e.g., be short and broad and in a line with the cranium, or long and broad and nearly as strongly deflected as in sheep. Again, although until recently it was assumed that in all modern horses the molars had the same pattern, it is now realised that horses still exist in which the teeth are as simple as in the oldest true horse known—*Equus sivalensis* of the Indian Pliocene. Further, it is now realised that from Pliocene times onwards there have been horses with limbs as slender as in desert Arabs, and horses with limbs relatively as coarse as in Shires and Clydesdales.

The four possible ancestors of domestic horses may be provisionally defined as follows: 1. In horses of the "forest" type (Fig. 30) the face is short and broad and in a line with the cranium (Figs. 33 and 37); the fold on the inner surface of the molars, known as the internal pillar, is large (the grinding surface being at least half the length of the crown of the tooth measured from before backwards), the front cannon bone (middle metacarpal) is so short and wide that the length may be only 5.2 times the width at the middle of the shaft (Fig. 42), the back is long, the hindquarters are rounded, the tail is set-on low (Fig. 30), and the hoofs are broad (Fig. 40).

2. In the "steppe" horse (Fig. 31) the face, narrow between the orbits, is long, deep, and convex ("Roman-nosed"), and deflected to form an angle of about 16° with the cranium (Figs. 35, 39, and 45), the pillar in the last premolar and all three molars is long, and the front cannon bones are 12.5 times the width; the back is short, the tail though

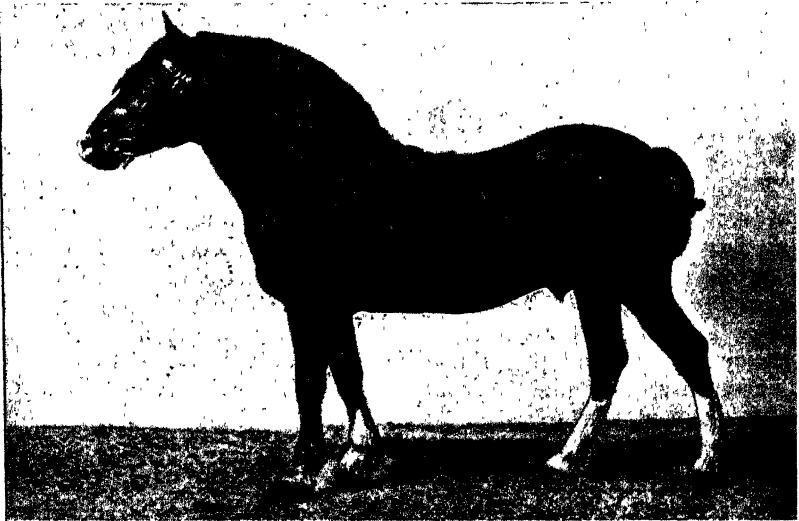


Fig. 30.—An Ardenne stallion. Horses of this breed are believed to be allied to the wild race common in Palaeolithic times in the vicinity of Solutré, to the north of Lyons. Note the short face, short neck, and short limbs, the long body, rounded hindquarters, and low set-on tail, long wavy mane, and other points characteristic of the "forest" type.

Fig. 31A.

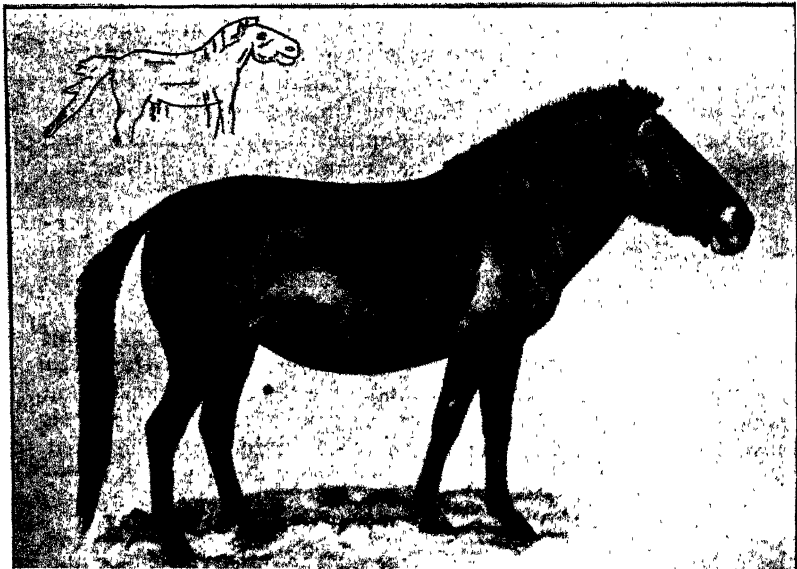


Fig. 31.—A Prejvalsky mare imported from Mongolia. Note the fine clean limbs, upright mane, and mule-like tail, "roughened at the root," as in the drawing (Fig. 31A) made by a Palaeolithic artist. The face is long and narrow, with a groove at each side between the eye and nostril as in many Clydesdales. This mare is untameable, but her hybrid by "Braemore" is quite tractable. She easily clears her own height, her hocks almost touch as she walks, and in spring she seems to prefer branches of trees to hay. The hind chestnuts are long and pointed above. The colour is yellow-dun.

not set-on high, is in a line with the croup (Fig. 31), and the hoofs are elongated (Fig. 41).

3. In the "plateau" type the face, narrow across the orbits, is fine and tapering, and deflected to form an angle of about  $8^{\circ}$  with the cranium, the pillar of the last premolar and first molar is short, the front cannon bones are so slender that the length may be over 7.5 times the width (Fig. 43), the neck is long, the back short, the hoofs are small, and, unlike all the other Equidæ, the hind chestnuts and all four ergots are absent.

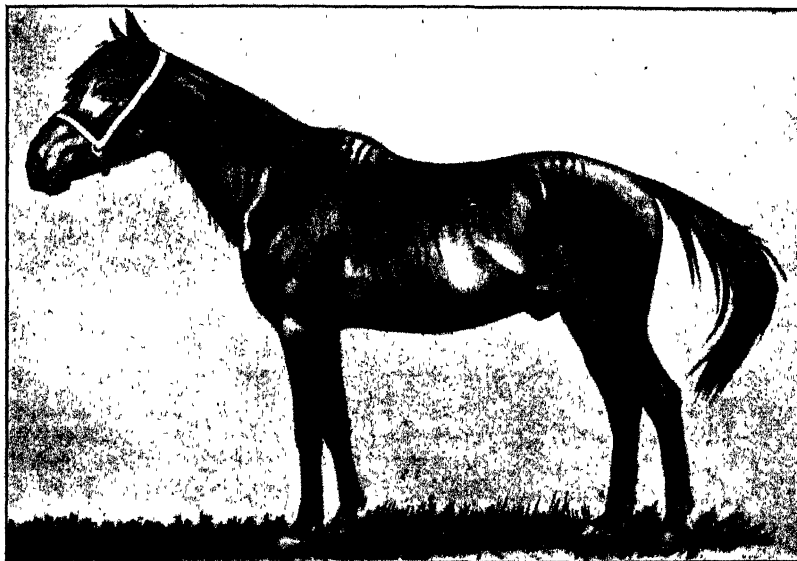


Fig. 32.—A Battak pony imported from Sumatra. This pony probably represents fairly accurately the 16-hands horse (*Equus stivalensis*) which in Pliocene times lived amongst the foothills of the Himalayas. Though a dark bay, this pony has numerous indistinct stripes on the neck and trunk. He is especially characterised by a prominence between the eyes, as in "Persimmon", fine limbs, high withers, high set-on tail, great strength and courage. In this (the "Siwalik", as in the "forest" type there are four chestnuts and four ergots—in the "Celtic" pony ("plateau" type) only two of the eight callosities are present.

4. In the Indian "Siwalik" species the face (Figs. 32 and 44) is broad, long, and tapering, and deflected to form an angle of nearly  $20^{\circ}$  with the cranium (Fig. 34), the pillar of the last premolar and first molar is short, and the length of the front cannon bones is about seven times their width; the limbs and neck are long, the withers high, and the root of the tail is well in front of the point of the buttock (Fig. 32).

Though material for working out the origin of domestic breeds is still limited in amount, and though little is yet known of the later phases through which the different types of horses pass during their development, enough has been

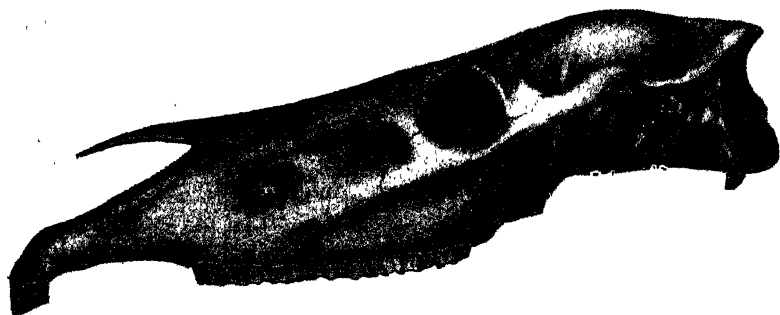


Fig. 33.—Side view of a skull of a "forest" horse. The face is short and in a line with the cranium, as in the Elk (*Alces*) and other Ungulates adapted for a forest life. In long, low Iceland ponies, and in some Korea ponies, the face is slightly tilted upwards; in some long, low Shetland ponies the face is nearly as dished as in new-born foals of other breeds.

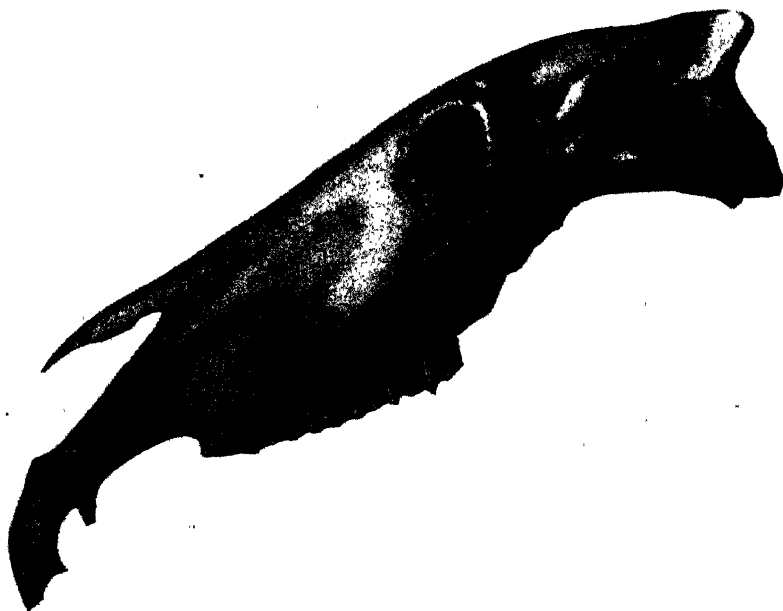


Fig. 34.—Side-view of a skull of the "Siwalik" type, in which the face is so bent downwards that it forms an angle of over  $19^\circ$  with the cranium. The Shire during development passes through a "Siwalik" phase—in a 144 days Shire fetus the face is more bent downwards than in the skull figured. In adult Clydesdales and Shires, as in some thoroughbreds, the deflection may be over  $16^\circ$ , and it is still more pronounced in certain Kirghiz and Kathiawar ponies. In sheep and other upland forms adapted for grazing on short herbage the face is strongly bent downwards on the cranium.

learned to justify the conclusion that Clydesdales and other heavy breeds include several wild species amongst their ancestors. Ridgeway says: "Our best English breeds of cart-horses owe their excellence to the North African horses,"—*i.e.*,



Fig. 85.—Side view of the skull of a four-year-old 12-hands Prejvalsky stallion (Fig. 45 represents head of this stallion as a three-year-old). In this skull the face forms an angle of  $16^{\circ}$  with the cranium, and is 85 mm. longer than in a 12·2-hands "forest" pony. As is usual in "steppe" forms, the nasal chambers are large in *Equus przewalskii*, which implies a bulging out of the nasal bones to form a more or less marked "Roman-nose."

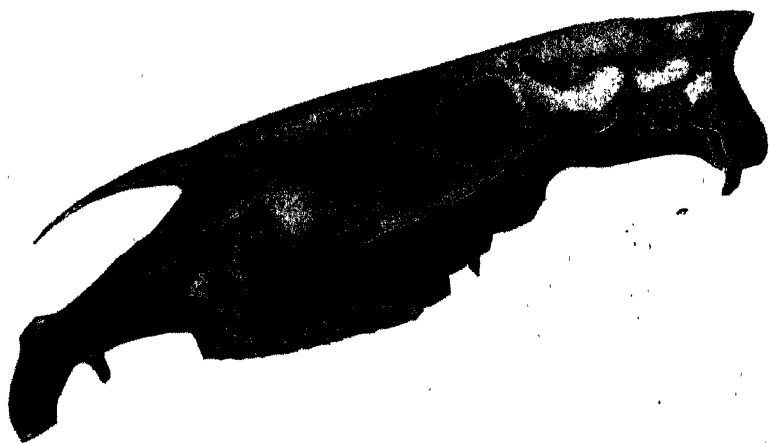


Fig. 86.—Side view of the skull of a Shire stallion ("Starlight") in the British Museum. This skull, though less bent, resembles the Wild Horse skull represented in Fig. 85; the face is relatively as deep (as "Roman-nosed") and as long. In the Wild Horse (Fig. 85) the frontal index is 50·5, in the Shire 51, while in a "forest" horse it may be over 60. In a 12-hands Wild Horse the teeth are as large as in a 16-hands Clydesdale.

to slender-limbed, almost wartless horses of the "plateau" type. There is, however, no evidence that Clydesdales of the "Baron's Pride" type include amongst their ancestors a slender-limbed race with a fine head, small pillared teeth, and only two chestnuts. Neither is there any evidence that the black breeds of the world (amongst which is included the English Great Black Horse, an ancestor of the Shire) are, as Pater Lagaway holds,



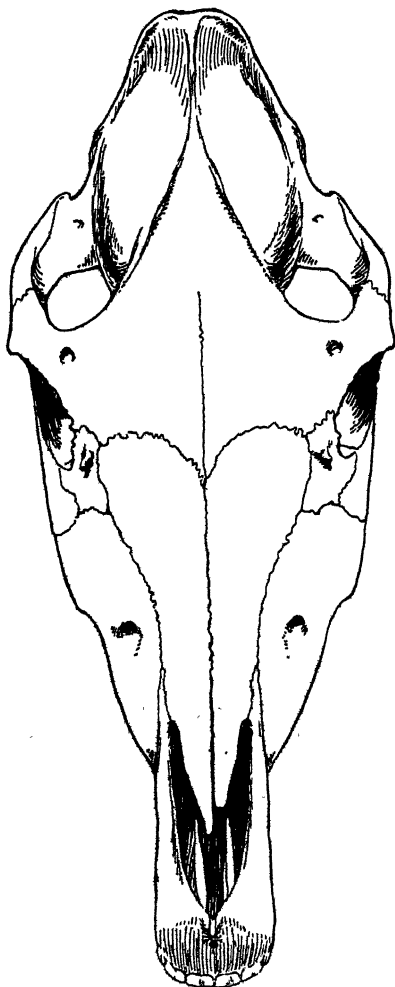


Fig. 37. — Front view of the skull of a "forest" horse in which the straight dished-face is so short and so wide across the orbits that the frontal index is 61.



Fig. 38. — Front view of a skull of the "Siwalik" type in which the bent face, wide across the orbits as in "forest" horses, is long and tapering as in Arabs and thoroughbreds characterised by a prominence between the eyes.

the result of mixing a fine ("plateau") race with coarse races of Upper Europe and Upper Asia. On the other hand, there are good reasons for believing that Shires and Clydesdales are a blend of the "forest," "steppe," and "Siwalik" types.

Horses are in some respects the most highly specialised animals in existence—they especially differ from other living mammals in their teeth and limbs. Of the limb bones the hoof-bone is perhaps the most remarkable, but the cannon

bone (short and broad in some races, long and narrow in others) throws most light on the origin and affinities of the various modern breeds. In the Shire horse "Blaisdon Conqueror," the total length of the metacarpal is 268 mm., and the width at the middle of the shaft is 48 mm., hence the length is 5.58 times the width. A metacarpal of the "Siwalik" type from the Indian Pliocene is 252 mm. in length and 36 mm. in width, the length is hence practically seven times the width; in a typical "steppe" horse the metacarpal measures 215 mm. by 32 mm., which gives an index of 6.71, whereas in a metacarpal of a "plateau" horse from the Pliocene of Italy the length is 231 mm. and the width 32 mm., hence the length is 7.43 times the width. In all these types the metacarpal is decidedly more slender than in "Blaisdon Conqueror," but in horses of the "forest" type from the Grotto of Grimaldi and from German diluvial deposits, some of the metacarpals are actually stronger than in modern big-boned cart-horses. A metacarpal from the Grotto de Prince Grimaldi measures 225 mm. by 43 mm. As in

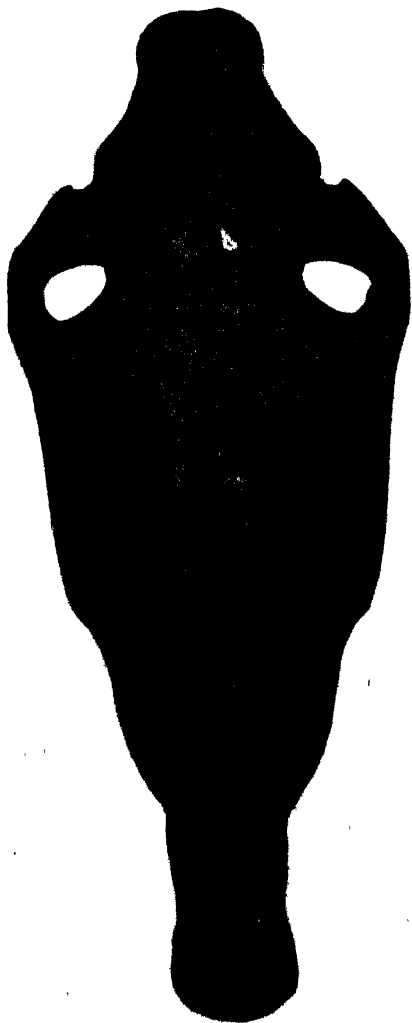


Fig. 89.—Front view of the skull of the four-year-old Prajvalsky stallion represented in Figs. 35 and 45. The face is narrow across the orbits, relatively very long, but instead of tapering as in the "Siwalik" horse (Fig. 88) it is as wide across the incisors as in the "forest" horse (Fig. 87).

this metacarpal the length is only 5.23 times the width, the 13-hands horse to which it belonged had more "bone" than any recent horse of a like size hitherto examined. Many of the horses which inhabited Central Europe in Pleistocene times had short broad cannon bones. In the case of the 12- to 13-



Fig. 40.—Fore hoof of a "forest" horse. The hoof is nearly as wide as it is long. The "heels" are far apart, and leave ample room for the large "frog." A hoof of this kind is well adapted for a life amongst bogs and marshes. In a typical "forest" horse, in addition to broad hoofs, there are short upright pasterns. Half its natural size.

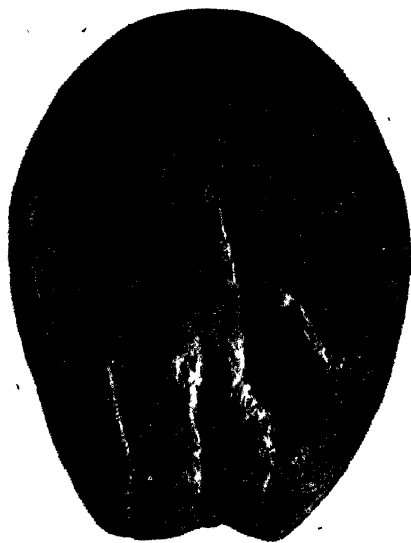


Fig. 41.—Fore hoof of a wild horse from Mongolia. In horses adapted for a steppe life the hoofs are elongated, and the weight is supported to a considerable extent by long narrow "heels." The frog, instead of expanding behind, is contracted and held as in a vice by the elongated bars. A narrow hoof implies a narrow metacarpal and flat "bone." The hoof of Prejvalsky's horse, by having the consistency of whalebone, is well adapted for the arid wastes of the Gobi, where the few surviving herds of the only wild species of horse left have long found a safe retreat.

hands horses so abundant during the Soluterian age to the North of Lyons, the length of the metacarpal was as a rule about six times the width. But in diluvial horses which frequented the area now drained by the Weser, the cannon bones were relatively thicker and nearly as long as in some modern cart-horses.

Nehring figures a fossil metacarpal from a diluvial deposit in Magdeburg, in which the length is 5.6 times the width, and refers to others of a like age, in which the length was less than 5.5 times the width. A fossil metacarpal from near Berlin, which measures 249 mm. by 44 mm., is especially interesting, for it proves conclusively that some of the wild horses which lived in Germany many long ages before animals were first domesticated measured about 15

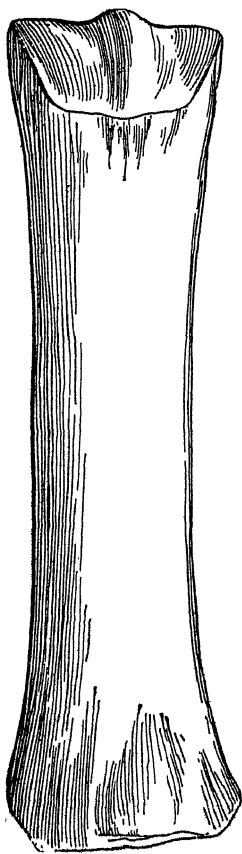


Fig. 42.—The front cannon bone (metacarpal 3) of a 12·8-hands pony of the "forest" type. In the oldest true (one-toed) horses known the metacarpals are slender. As the hoof was adapted for soft pasture-lands and peat-bogs, the metacarpals became wider, and were eventually in some races, in length, only 5·2 times the width across the centre of the shaft. In the Shire "Blaisdon Conqueror" the length of the metacarpal was 5·6 times the width. Half natural size.

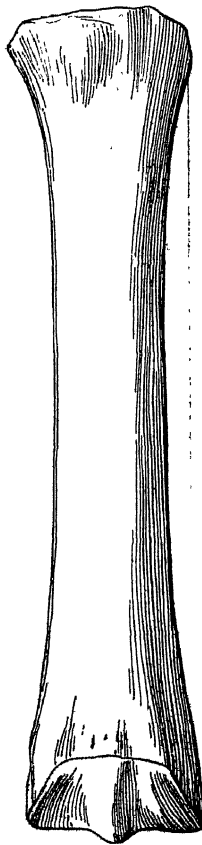


Fig. 43.—The front cannon bone of a 12·2-hands slender-limbed pony of the "plateau" type. In "Celtic" and "Libyan" ponies, as in the finer kinds of Arabs and thoroughbreds, the metacarpals are nearly as slender as in the Miocene horse *Pliochippus*. Horses with fine "bone" have existed in Europe side by side with coarse-limbed horses for countless ages. Want of lime and in-and-in breeding may reduce the size of the cannon bones, but as a rule fineness of "bone" is due to reversion to an ancient slender-limbed ancestor. Half natural size.

hands at the withers, and had as coarse limbs as modern cart-horses.

From a study of the fossil limbs, bones, and teeth, one is led to infer that three varieties of "forest" horses flourished in Europe during the Quaternary period. One of these varieties is represented by the 12- to 13-hands horse of Solms. This small stout horse, which probably belonged to the true forest



Fig. 44.—Head of cross-bred filly with a prominence or "bump" between the orbits. A prominence of this kind is found in certain Arab strains and also in some thoroughbreds. There was a distinct "bump" between the eyes in "Persimmon." Horses with a prominence between the eyes are said to be characterised by an indomitable disposition. The "bump" does not indicate a special development of the brain, but that its possessor in all probability includes amongst its ancestors the Oriental race (*Equus stalenis*) which in Pliocene times lived amongst the foothills of the Himalayas.

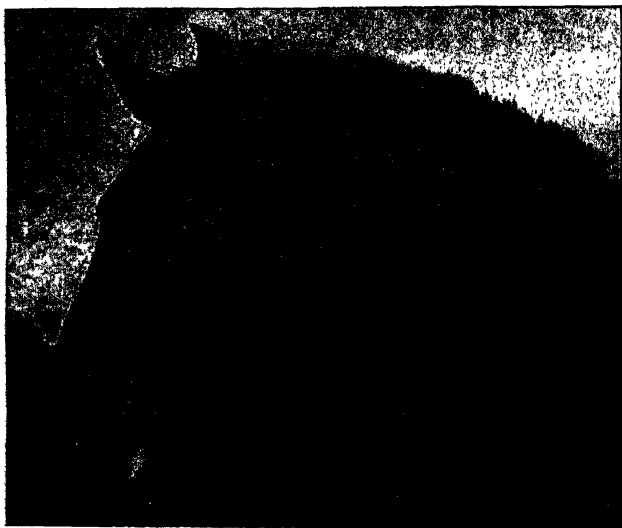


Fig. 45.—Head of a three-year-old Prejvalsky stallion. Owing to the great length of the face in the "steppe" horse, the eyes appear to be very near the ears but far removed from the nostrils. The space between the eyes is nearly flat, but below the eyes the outline is convex, owing to the bulging outwards of the nasal chambers. In many Clydesdales the head closely agrees with that of the wild horse of Mongolia. In addition to the long "Roman nose," many Clydesdales have, like Prejvalsky's horse, a shallow groove extending from below the eye towards the nostril. To what extent the forelock, long mane, and well-furnished tail of modern domestic breeds are the result of domestication it is impossible to say.

fauna, is best represented to-day by long, low Iceland ponies, with a dished-face, elk-like nose, and a low set-on tail; a second variety, larger in size, with coarser limbs and a straight profile, seems to have been adapted for an upland life in the area now known as the Riviera; while the third variety, which included large as well as small races, with a somewhat long dished-face such as one occasionally sees in Shetland ponies, lived in the low-lying parts of Central Germany, more especially near the Rhine and the Weser.

Nehring regarded the fossil horse of Solutr  as the large coarse-limbed diluvial horse of Germany as local races of the same species,—had Nehring known of the existence of the horse of Grimaldi he would doubtless have regarded it as a third race of Sanson's *Equus caballus germanicus*. The small horse of Solutr  was probably most abundant during the milder portion of the Solutrian age, while the diluvial horse of Germany was probably common in Europe during the last cold damp phase of the glacial epoch.

That one or more of the wild ancestors of Shires and Clydesdales long lived under conditions not unlike those which now prevail in the Outer Hebrides and in the Far  Islands is suggested by the luxurious growth of hair at the fetlocks,—that the "footlock" was originally associated with moisture rather than with cold is suggested by its poor development in the wild horse of Mongolia, where the annual rainfall is probably under 10 inches.

That the Shire and other modern heavy breeds inherited their coarse limbs from horses of the forest type, more especially from the large diluvial horse of Germany, is now generally admitted. But because the coarse limbs of heavy breeds are an inheritance from "forest" ancestors, it does not necessarily follow that the coarse head has come from the same source. Until recently the only skull of the diluvial horse available for study was an imperfect one from Remagen on the Rhine. Fortunately a nearly perfect skull of a "forest" horse was found some years ago in one of the Grimaldi Grottoes at Mentone. From a description of this skull, recently published by Professor Marcellin Boule of the French Natural History Museum, it is evident that the Grimaldi variety of the "forest" horse was not characterised by a long, narrow "Roman-nosed" face such as we find in the wild horse of Mongolia. In a typical adult skull of the "forest" type, owing to the face being short and broad (Fig. 37), the frontal index is 61.<sup>1</sup> In the long narrow-faced "steppe" type (Fig. 39) this index is only 50.

<sup>1</sup> The frontal index is obtained by dividing the width across the orbits (frontal width) by the length of the face as measured from between the central incisors and a line connecting the supraorbital foramina.

and in the small-faced "plateau" type 54. The frontal index in the Grimaldi skull is 56·8. But as the Grimaldi skull belonged to a filly under two years of age, the upper borders of the orbits (eye-sockets) which give width to the face are imperfectly developed. Were due allowance made for the undeveloped state of the Grimaldi skull, the frontal index would be about 60.

Of even more importance than the frontal index is the relation of the face to the cranium. In a "forest" horse the face is in a line with the cranium (Fig. 33), whereas in "plateau," "steppe," and "Siwalik" (Fig. 34) horses the face is bent downwards on the cranium. As in the Grimaldi skull the face is nearly in a line with the cranium, we have very strong evidence in support of Prof. Boule's view that it belonged to the "forest" type. In a "Siwalik" horse, as in thoroughbreds of the "Persimmon" type, there is a prominence (interorbital bump) which extends below as well as above the level of the orbits (Fig. 44); in the "steppe" type the forehead is flat, but the profile from below the level of the orbit to the muzzle is distinctly convex—*i.e.*, a "steppe" horse is "Roman-nosed" as well as deep-faced (Figs. 35 and 45); in the "plateau" type, but for a slight prominence between the orbits, the face is nearly straight. In the Grimaldi skull the profile is quite straight, which is what one would expect in an upland variety of the "forest" type. Prof. Boule, after a very exhaustive study of the Grimaldi skull, arrived at the conclusion that the horse which in Pleistocene times frequented the upland valleys near the Mediterranean "had all the characters of the sub-species which, according to Ewart, represents the type of the 'forest' horse." In other words, the only perfect skull hitherto found along with short broad metacarpals (such as characterise modern heavy horses) affords no support to the view that the diluvial horse of Europe, sometimes known as *Equus caballus occidentalis*, was characterised by a long, narrow, "Roman-nosed" face such as occurs in the wild horse of Mongolia. It hence follows that though long-faced, narrow, browed, "Roman-nosed" Clydesdales and Shires have inherited their coarse limbs from a "forest" horse (the diluvial horse of Germany), they are indebted to "steppe" or to both "steppe" and "Siwalik" ancestors for their large coarse head (Fig. 36).

Some of the horses imported from Mongolia are obvious hybrids, others probably faithfully represent the wild species engraved by palæolithic artists on the walls of caves during the Early Stone age (Fig. 31A). The Prejvalsky horses, with an upright mane and the tail "roughened at the root," as in palæolithic engravings, are, as already said, characterised by a flat

forehead, a long narrow face, and a more or less pronounced "Roman-nose" and a light muzzle.

In a considerable number of Clydesdales the head very closely agrees with that of a typical Prejvalsky horse. Clydesdales with a Prejvalsky-like head are sometimes of a bay-dun colour, and have a light muzzle. Further, bay-dun Clydesdales sometimes in make closely resemble hybrids recently bred at Woburn, by crossing a long, low, dished-faced chestnut Iceland "forest" pony with a Prejvalsky stallion.

While in many heavy horses the space between the eyes is nearly flat, in others it is prominent, as in horses of the "Siwalik" type. In Clydesdales, with a prominence between the eyes, the face is usually decidedly deflected on the cranium but not distinctly "Roman-nosed"; in others with the face less deflected the interorbital prominence is followed by a separate nasal prominence; while in others, by the blending of the interorbital and nasal prominences, the "Roman-nose" springs from the middle of the forehead and extends to near the muzzle. When the face is decidedly deflected, and there is in addition a prominence between the eyes, it may be taken for granted that horses of the "Siwalik" type are included amongst the ancestors.

It might be said that it is inconceivable that while one wild race has contributed the limbs, other wild races have taken part in forming the head. But now that, through Mendel and his followers, we know that characters can be transferred unchanged from one variety or race to another, we need not hesitate to admit that a Clydesdale may have limbs of the "forest" type, but a head partly modelled on the "steppe" and partly on the "Siwalik" type.

Clydesdales and other heavy horses, in addition to differing in their limbs and head, differ in the shoulders and withers, in the length of the loins, shape of the hindquarters, position of the hocks, setting-on of the tail, &c. Iceland ponies, with limbs and teeth like the horse of Solutr , have usually a short neck, low withers, upright shoulders, and short pasterns, six loin vertebrae, rounded hindquarters, a low set-on tail, and broad hoofs, and they are usually characterised by softness and a timid, gentle disposition.

Heavy horses which, apart from their head, agree with long low Iceland ponies, are doubtless mainly descended from "forest" ancestors. Of modern English breeds the Suffolk seems to be most closely related to the ancient diluvial German race; of Continental breeds, the one associated with Ardenne (Fig. 30) probably most accurately represents the small robust horse of Solutr .

Kirghiz horses, with the face strongly deflected on the



cranium, as in the "Siwalik" type, are usually characterised by a long neck and long limbs, by high withers and well-laid shoulders, by a high set-on tail, long pasterns, and well proportioned but not very broad hoofs, by great staying power and an indomitable temper. Heavy horses, which, apart from their limbs, approach in make and disposition bent-faced Kirghiz horses, are probably a blend of "forest" and "Siwalik" ancestors.

On the other hand, coarse-limbed, narrow-browed heavy horses, with a long face and a pronounced "Roman-nose," a short neck and low withers, a short back, and the tail, though not set-on high, nearly in a line with croup, and with, in addition to staying power, great facility in clearing obstacles, are probably largely indebted to "steppe" ancestors.

### *Three Wild Races the Origin of Heavy Breeds.*

If the conclusions arrived at from studying the skull, teeth, limbs, &c., of fossil and living races are warranted, it follows that our modern heavy breeds are not the descendants of a coarse-headed, clumsy, slow-moving, small, prehistoric race,—are not, in fact, a striking example of the beneficial effects of domestication, but are a blend, in most cases, of three perfectly distinct wild races—viz., (1) a large, robust, broad-browed race, with a straight or dished-face, and with stout limbs adapted for a forest life; (2) a race in build not unlike certain modern thoroughbreds, characterised by a face bent downwards on the cranium, a prominence between the eyes, long limbs, well-laid shoulders, high withers, and a high set-on tail; and (3) a race highly specialised for a steppe life, characterised by a long narrow face, and, as in many steppe forms, by large nasal chambers (which imply a "Roman-nose"), by clean limbs, close hocks, and a wonderful power of clearing obstacles.

It has often been assumed that the "original" horse was only about 12 hands high—about the size of an Iceland pony—but it now appears that one of the wild ancestors (the "Siwalik") of modern horses measured over 15 hands, one (the "forest") about 15 hands, while the third (the "steppe"), though now represented by a small race (12 to 13 hands high), probably, when its range was wider, measured about 14 hands.

### *Hints to Clydesdale Breeders.*

If the Clydesdale breed has been derived from three distinct wild races, and consists of three more or less distinct types, it follows that it is not enough for breeders to "mate the best with

the best." When pure bred web-footed pigeons from one loft are crossed with pure bred and practically identical web-footed pigeons from another loft, the offspring, instead of being all web-footed, have mostly normal feet. When a pedigreed West Highland terrier of one kennel is mated with an equally well bred and similarly built West Highland terrier from a different kennel, the majority of the offspring, instead of being pure, may have few of the points of the breed to which they by descent belong. If crossing different strains of pigeons and dogs leads to reversion, crossing of different strains and types of horses is also likely to lead to reversion.

In some animals (*e.g.*, dogs and pigs) domestication has led to profound modifications, but for obvious reasons domestication has led to little modification in the Equidæ. There is little difference, except in size, between the domestic ass and its wild ancestor the Nubian ass; and had domestic horses all descended from a "steppe" race, they would probably still closely resemble the wild horse recently discovered in Mongolia. Further, the descendants of the Spanish horses which ran wild in America in no essential point differed from their relatives which remained in the service of man.

If Clydesdales, like thoroughbreds,—notwithstanding domestication and artificial selection,—are really a mixture of several distinct types which refuse to blend to form a pure breed, it is evident that breeders of Clydesdales, like breeders of thoroughbreds, should avoid having too many "free generations" between the sire and dam; in other words, they should, unless for special reasons, avoid crossing distinct types.

Having by accident or design secured a good strain, they should endeavour to maintain the strain in all its purity. On the other hand, breeders who have indifferent strains should bear in mind that it is possible, by working on Mendelian lines, to engraft on their strain the points (*e.g.*, good shoulders) which appreciably increase the value of other strains. By mating unrelated mares with a stallion having the points desired, and then interbreeding the offspring or mating their fillies with a half-brother (out of an unrelated mare of the right type) from another stud, they will have a good chance of obtaining what they desire.

It may be added that breeders of heavy horses might well bear in mind that animals with hoofs and limbs of the "steppe" or "Siwalik" type are more likely to stand the wear and tear of city life than animals with broad hoofs, "round" cannon bones, and hairy heels, inherited from a "forest" race, adapted for the moist pasture-lands and peat-bogs which prevailed in Central Europe in prehistoric times.

## INFLUENCE OF TEMPERATURE ON MILK YIELD. VENTILATION OF COW BYRES.

By CHARLES DOUGLAS of Auchlochan, Lesmahagow.

THE experiment on the ventilation of byres and its influence on milk yield was continued in a second series in 1909-10 in the same form in which it was carried on in 1908-9.<sup>1</sup>

It was initiated by the late Mr John Speir; and after his lamented death it was supervised by Mr Hendrick, the Society's chemist, who had previously taken part in it.

### *Centres.*

This second series of experiments was carried on at five centres:—

(1.) At Newton, with 18 cows in a freely ventilated part, and 18 in a separate less ventilated part of the byre.

(2.) At Byres Farm (Sir John Stirling-Maxwell's Home Farm at Pollok), with nine cows in each division.

(3.) At the farm of the Perth District Asylum at Broompark, Murthly, with seven cows in each byre.

(4.) At the Asylum Farm, Rosslynlee, Mid-Lothian, with six cows in each division.

(5.) At Pictstonhill, Perth (in Mr W. S. Ferguson's dairy), with 12 cows in each byre.

### *Cows under Experiment.*

The cows at Newton and Byres were of the Ayrshire breed, those at the other centres being mixed Ayrshires and cross-breeds.

It will be observed that the number of cows under review in the present series of experiments is 104, or four more than in the preceding series.

The cows were grouped, under Mr Speir's guidance, at the beginning of the period, so as to secure the utmost possible equality; and the general results indicate that this was successfully carried out.

### *Period of Experiments.*

The general period of the experiment was from November 21 to March 27; but the experiment ceased at Byres Farm on

<sup>1</sup> Trans., Fifth Series, vol. xxi. p. 255.

February 20; and no results are available from Pictstonhill until January 23, the experiment not having been initiated there until January, and the earlier papers having apparently been in some way mislaid. The experiment at Rosslynlee was continued until April 3.

### *Ventilation of Centres.*

It will be observed that only two of the centres coincide with those in which the first series of experiments took place, the remaining three being new. The experiments have thus, during the two years, been carried on in eight separate centres, in two of which they have been repeated.

### *Instructions to Persons in Charge.*

The instructions to persons carrying out the experiment were the same as those which were given in the former experiment, and which are printed in the 'Transactions' for 1909 (Fifth Series, vol. xxi. p. 262).

### *The Byres.*

The byres were at the following elevations:—

Newton .	106 feet above sea-level.
Byres .	90 " "
Murthly .	185 " "
Rosslynlee	690 " "
Pictstonhill	250 " "

The byres were all in fairly open situations, and capable of satisfactory ventilation. They varied greatly in respect of the air-space allotted to each cow, as will be seen from the following table:—

### CUBIC FEET PER COW AT THE VARIOUS CENTRES.

A. FREELY-VENTILATED BYRE.		B. LESS VENTILATED BYRE.	
Newton .	525 cubic feet per cow.	480 cubic feet per cow.	
Byres .	510 " "	609 " "	
Murthly .	719 " "	758 " "	
Rosslynlee.	1268 " "	917 " "	
Pictstonhill	1195 " "	1432 " "	

It will be observed that the air-space is greater in the freely-ventilated byre in two cases, and in the less ventilated byre in the remaining three. But, taken all over, the average space is

843 cubic feet in the one case and 839 in the other, so that the conditions may be regarded as equal in this respect, as between the two sets of conditions.

Equality of feeding and management was aimed at throughout, and there is every reason to believe that it was attained.

### *Testing.*

The Pictstonhill milk was tested for butter-fat at Newton at first under Mr Speir's supervision, and later under that of Miss Speir, who took charge also of the Newton experiment after Mr Speir's death.

At the other centres the testing was carried out by the persons in charge of the experiments.

### *Temperatures.*

The table on p. 173 gives the average monthly temperature in each byre, and the average temperature of all combined for each month. In calculating the combined average, regard has been had to the number of cows at each temperature, so as to give equal effect to the temperature at which each animal was kept.

### *Comparative Efficiency of Ventilation.*

The comparative efficiency of ventilation in the two sets of byres is best indicated by the amount of carbon dioxide in the atmosphere of each. This was kept under constant observation, samples being regularly taken and forwarded for examination.

Professor Hendrick reports as follows :—

"A general report on the experiments of 1908-9 by the late Mr John Speir appeared in the 'Transactions' for 1909. In that report the tests of the efficiency of the ventilation by determinations of carbon dioxide in the air of the two sets of byres were not included.

"It was originally intended to make frequent tests of the amount of carbon dioxide in the air on the spot, by some easy and rapid method which could be carried out by those in charge of the individual experiments. For this purpose the Lunge and Zeckendorf apparatus was tried, and its results were from time to time checked by determinations by the standard Pettenkofer method made by Mr James Hendrick, Chemist to the Society. A little experience showed that the results obtained by the Lunge and Zeckendorf method could not be relied upon. This method was therefore abandoned. Tests continued to be

Month.	Farm.	A. Free Ventilation. Avg. deg. F.	B. Restricted Ventilation. Avg. deg. F.	Monthly average of all.	
				A. Free Ventilation.	B. Restricted Ventilation.
1909. November.	Newton, 3 days .	49.6	55.8		
	Murthly . . .	...	...		
	Byres, 12 days .	48.6	54.5		
	Rosslynlee . .	...	...		
	Pictstonhill .	...	...		
	Average .			49.26	55.36
December .	Newton . . .	46.12	56.81		
	Murthly . . .	47.0	52.6		
	Byres . . .	47.52	57.27		
	Rosslynlee . .	47.66	53.52		
	Pictstonhill .	...	...		
	Average .			46.82	55.68
1910. January .	Newton . . .	45.46	56.61		
	Murthly . . .	46.2	51.9		
	Byres . . .	47.28	58.8		
	Rosslynlee . .	47.78	54.91		
	Pictstonhill .	52.1	58.7		
	Average .			47.67	56.64
February .	Newton . . .	48.01	59.51		
	Murthly . . .	48.0	56.7		
	Byres . . .	48.83	60.63		
	Rosslynlee . .	48.89	55.34		
	Pictstonhill .	51.3	60.3		
	Average .			49.01	59.02
March .	Newton . . .	51.64	60.5		
	Murthly . . .	51.03	54.4		
	Byres . . .	...	...		
	Rosslynlee . .	53.50	57.89		
	Pictstonhill .	53.7	62.0		
	Average .			52.37	59.56
	Average for the whole period .			49.02	57.25

made at intervals by the Pettenkofer method, and the results of these are shown in the table on p. 174.

"After the experience gained in 1908-9, it was decided to have a limited number of tests made by the Pettenkofer, and at the same time a large number of tests on smaller samples by the Haldane method during the experiments of 1909-10. In the Haldane method the tests are very accurate, but the small samples taken are more likely to be vitiated by small accidental whiffs of impure air. As we might expect, therefore, the vari-

## CARBON DIOXIDE GAS IN THE AIR OF BYRES. Winter 1908-9.

Estimated by Pettenkofer Method. Parts per 10,000.

Place.	No. of samples taken from each byre.	Free Ventilation.		Restricted Ventilation.	
		Variation.	Average.	Variation.	Average.
Newton . .	10	6.5 to 15.9	10.3	9.0 to 50.3	24.9
Crichton Institution . .	5	9.5 to 14.7	12.4	12.9 to 51.9	30.6
Woodilee . .	4	6.6 to 11.8	8.7	11.0 to 46.2	24.5
Hartwood . .	2	11.4 to 13.4	12.4	12.5 to 17.4	14.9
Rosslynlee . .	4	15.3 to 24.8	19.7	25.8 to 88.9	60.0
	25	6.5 to 24.8	12.1	9.0 to 88.9	30.8

ation for the large number of samples tested by the Haldane method is wider than for the smaller number of tests made by the Pettenkofer, but the general direction of the results is the same.

"In both cases and for both years the air of the byres with restricted ventilation was much more impure than that of those with free ventilation. Roughly speaking, it contained twice as much carbon dioxide.

"At the same time, the byres with free ventilation did not contain very pure air. There were occasional samples which showed a good degree of purity. In the case of one sample from Pollokshaws the air contained the normal amount of carbon dioxide for pure outside air. But on the average, the air even of the freely-ventilated byres contained 12 to 15 parts of carbon dioxide per 10,000. In the case of the byres with restricted ventilation, there were practically no samples which contained less than 10 parts per 10,000, and they ran up to over 100 parts of carbon dioxide per 10,000. In the case of certain byres the average amount of carbon dioxide in the air was specially high. In all cases, as the season advanced, the amount of carbon dioxide in the air of the byres, and especially the byres with restricted ventilation, fell, so that at the end of the season, just before the experiments stopped, the samples from the restricted ventilation were not much worse than those from the freely-ventilated byres. This is probably due to the fact that as the weather became milder the ventilation was not so much restricted, and the byres were opened, and there was freer access of air to both the byres. The worst samples were obtained, in all cases, in the dead of winter, when no doubt the byres were kept more completely shut up."

## CARBON DIOXIDE GAS IN THE AIR OF BYRES. Winter 1909-10.

Estimated by Pettenkofer Method. Parts per 10,000.

Place.	No. of samples taken from each byre.	Free Ventilation.		Restricted Ventilation.	
		Variation.	Average.	Variation.	Average.
Newton . .	6	5.66 to 13.3	10.1	9.9 to 30.0	22.22
Pollokshaws .	4	6.4 to 34.6	17.2	25.7 to 45.2	35.1
Murthly . .	3	9.3 to 13.5	11.3	20.4 to 27.2	23.9
Pictstonhill .	4	5.9 to 18.0	12.4	18.6 to 33.6	27.1
Rosslynlee .	3	6.9 to 22.2	12.3	19.2 to 71.4	37.3
	20	5.6 to 34.6	12.5	9.9 to 71.4	28.0

## CARBON DIOXIDE GAS IN THE AIR OF BYRES. Winter 1909-10.

Estimated by Haldane Apparatus.

Parts per 10,000.

Place.	No. of samples taken from each byre.	Free Ventilation.		Restricted Ventilation.	
		Variation.	Average.	Variation.	Average.
Newton . .	36	5.0 to 40.0	12.4	9.0 to 61.0	25.2
Pollokshaws .	30	3.5 to 34.5	12.6	14.5 to 46.7	26.4
Murthly . .	27	9.0 to 22.0	14.4	15.0 to 42.5	28.7
Pictstonhill .	27	8.7 to 39.0	21.5	16.2 to 65.5	35.4
Rosslynlee .	24	9.5 to 31.7	17.4	13.0 to 105.5	35.5
	144	3.5 to 40.0	15.3	9.0 to 105.5	29.6

"The samples to be tested by the Haldane method were sent to the laboratory in sets of six, three from each byre. At Newton some attempt was made to find whether there was much variation in the air according to the part of the byre from which the samples were taken.

"Thus, samples were taken from beside the heads of the cows, from the centre of the byre, &c. No marked or consistent differences were found between samples taken from different parts of the byre.

"On one or two occasions samples specially high in carbon dioxide gas were obtained from the head of the stalls. On two occasions such samples from the freely-ventilated byre were found to contain more carbon dioxide than the corresponding samples from the restricted byre. In such samples probably



some freshly-expired air found its way into the bottles. On the whole, however, the result of these tests is to show that there is such a circulation of air in the byres that the quality of the air is fairly uniform throughout the respective byres at the level at which the samples were taken—that is, about the level of the cows' heads. The great majority of the samples for the Haldane test were taken in sets of three from each byre at certain definite times of day. The results, which are given in the following table, do not show that there were any great or characteristic differences according to the time at which the samples were taken."

## CARBON DIOXIDE GAS IN AIR OF BYRES. Winter 1909-10.

Parts per 10,000.

	Free Ventilation.	Restricted Ventilation.
<b>NEWTON—</b>		
Average of 6 samples taken in the morning . . . . .	14.2	29.2
"        "        "        at noon . . . . .	16.1	29.6
"        "        "        in the evening . . . . .	14.9	32.5
<b>POLLOKSHAW—</b>		
Average of 10 samples taken when byres shut up for night . . . . .	8.9	24.1
Average of 10 samples taken a few hours after byres shut up . . . . .	15.7	27.8
Average of 10 samples taken before byres opened in morning . . . . .	13.4	26.3
<b>MURTHLY—</b>		
Average of 9 samples taken about 5 A.M. . . . .	12.2	26.1
"        "        "        "        2 P.M. . . . .	15.6	27.7
"        "        "        "        7 P.M. . . . .	15.5	32.5
<b>PICTONHILL—</b>		
Average of 9 samples taken about 3 A.M. . . . .	22.2	36.3
"        "        "        "        noon . . . . .	20.2	29.2
"        "        "        "        8 P.M. . . . .	22.1	40.7
<b>ROSSLYNLEE—</b>		
Average of 8 samples taken in the morning . . . . .	17.1	31.2
"        "        "        about 6 P.M. . . . .	18.3	38.9
"        "        "        "        10 P.M. . . . .	16.9	36.5

*Summary of Conditions.*

It thus appears that, on the one hand, the cows in the more freely-ventilated byres were kept at an average temperature of 49.02, varying from 32 to 65, while those in the less ventilated byres were kept at an average temperature of 57.25, varying from 41 to 69. On the other hand, the free ventilation gave a proportion of 15.3 parts of carbon dioxide to each 10,000 of atmosphere, while the restriction of ventilation, by which the higher temperature was produced, gave in the less ventilated byres an average of 29.6 parts in 10,000.

It may be added that the difference in the degree of ventila-

tion was very noticeable in practice; and the sensations of an ordinary observer would have led to the expectation of an even more considerable contrast.

### Milking Results.

It remains to note the comparative results in milk yield obtained under these contrasted conditions of coolness and better ventilation on the one hand, and of greater warmth and less ventilation on the other.

The following tables show the milk yields under the two sets of conditions from week to week over the whole period.

# A. SECTION—FREE VENTILATION.

TOTAL YIELD OF MILK PER WEEK OF THE COWS AT EACH CENTRE.

Week beginning	Newton—18 cows.			Byres—9 cows.			Murtle—7 cows.			Rosslynlee—6 cows.			Pitstonhill—12 cows.		
	Total milk in lb.	Milk daily in lb.	Ave. per cent fat.	Total milk in lb.	Milk daily in lb.	Ave. per cent fat.	Total milk in lb.	Milk daily in lb.	Ave. per cent fat.	Total milk in lb.	Milk daily in lb.	Ave. per cent fat.	Total milk in lb.	Milk daily in lb.	Ave. per cent fat.
1909.															
Nov. 28	3426.5	27.2	3.5	1199.0	20.0	4.0	1303.0	26.6	3.4	1386.5	31.8	3.7	...	...	...
Dec. 5	3392.5	26.9	3.4	1189.0	18.9	3.8	1314.0	26.8	3.3	1336.5	31.8	3.7	...	...	...
" 12	3267.5	25.9	3.3	1143.8	18.1	3.8	1323.0	27.0	3.2	1315.0	31.3	3.9	...	...	...
" 19	3283.0	26.1	3.2	1078.5	17.1	3.6	1324.5	27.0	3.3	1301.5	31.0	3.6	...	...	...
" 26	3394.0	26.9	3.3	1321.7	21.0	3.6	1333.0	27.2	3.2	1285.0	30.6	3.7	...	...	...
1910.															
Jan. 2	3243.5	25.7	3.2	1381.0	22.0	3.5	1356.0	27.7	3.2	1244.5	29.6	3.5	...	...	...
" 9	3237.0	25.7	3.3	1333.5	21.2	3.7	1349.0	27.5	3.2	1176.5	28.0	3.6	...	...	...
" 16	3182.0	25.3	3.3	1297.2	20.6	3.8	1349.5	27.5	3.2	1165.0	27.7	3.9	...	...	...
" 23	3081.5	24.5	3.3	1453.8	20.8	3.9	1231.0	26.1	3.4	1160.0	27.6	3.7	...	...	...
" 30	2957.5	23.6	3.3	1437.5	22.8	3.6	1302.5	26.6	3.3	1129.5	26.9	3.6	...	...	...
Feb. 6	2986.5	23.7	3.2	1436.0	23.6	3.6	1296.0	26.4	3.3	1097.5	26.1	3.5	...	...	...
" 13	2911.5	23.1	3.1	1358.5	24.3	3.5	1270.0	25.9	3.3	1037.0	25.9	3.6	...	...	...
" 20	2716.0	21.6	3.1	1289.5	23.0	3.4	1211.0	24.7	3.3	1115.0	26.5	3.8	...	...	...
" 27	2646.5	21.0	3.2	...	...	...	1175.0	24.0	3.4	1131.5	26.9	3.8	...	...	...
March 6	2691.0	21.4	3.2	...	...	...	1137.0	23.2	3.3	1106.0	26.3	3.6	...	...	...
" 13	2618.5	20.8	3.3	...	...	...	1120.5	22.9	3.3	1098.5	26.1	3.8	...	...	...
" 20	2669.5	20.4	3.3	...	...	...	1079.0	22.0	3.3	1065.0	25.4	3.8	...	...	...
" 27	2201.5	22.4	3.2	...	...	...	1063.5	25.3	3.3	1013.0	24.1	3.9	...	...	...
April 3	...	...	...	...	...	...	...	...	...	1004.0	23.9	4.0	...	...	...
" 10	...	...	...	...	...	...	...	...	...	2083.0	27.6	3.7	...	...	...
" 17	...	...	...	...	...	...	...	...	...	23891.0	34.3	3.5	...	...	...

15 days.

20 cows.

8 cows.

6 cows.

5 days.

11 cows.

**B. SECTION—RESTRICTED VENTILATION.**  
**TOTAL YIELD OF MILK PER WEEK OF THE COWS AT EACH CENTRE.**

Week beginning	Newton—18 cows.				Byres—9 cows.				Murthly—7 cows.				Rosslynlee—6 cows.				Pictstonhill—12 cows.			
	Total milk in lb.	Milk daily in lb.	Ave. per cent fat.		Total milk in lb.	Milk daily in lb.	Ave. per cent fat.		Total milk in lb.	Milk daily in lb.	Ave. per cent fat.		Total milk in lb.	Milk daily in lb.	Ave. per cent fat.		Total milk in lb.	Milk daily in lb.	Ave. per cent fat.	
1909.																				
Nov. 28	13269.5	27.5	3.4		1194.8	19.1	3.6		1308.5	26.7	3.1		1312.0	31.2	3.8		...	...	...	...
Dec. 5	3352.0	26.6	3.2		1351.2	21.4	3.6		1301.0	26.5	3.1		1316.5	31.3	3.7		...	...	...	...
" 12	3420.5	27.1	3.2		1242.5	19.7	3.6		1345.5	27.5	3.1		1263.5	30.1	3.7		...	...	...	...
" 19	3313.5	26.3	3.2		1265.5	20.1	3.6		1348.5	27.5	3.1		1252.0	29.8	3.6		...	...	...	...
" 26	3373.0	26.8	3.1		1380.2	21.1	3.6		1336.5	27.3	3.1		...	...	...		...	...	...	...
1910.																				
Jan. 2	3213.5	25.5	3.1		1370.8	21.8	3.5		1334.0	27.2	3.1		1237.0	29.5	3.5		...	...	...	...
" 9	3180.0	25.2	3.2		1327.0	21.1	3.7		1356.0	27.7	3.0		1218.5	29.2	3.7		...	...	...	...
" 16	3121.0	24.8	3.1		1292.5	20.5	3.7		1393.5	27.2	3.0		1236.5	29.4	3.6		...	...	...	...
" 23	3089.5	24.5	3.2		1438.8	20.6	3.8		1313.5	26.3	3.1		1112.5	26.5	3.6		2154.0	35.9	3.5	...
" 30	2987.5	23.7	3.2		1485.5	23.6	3.6		1298.5	26.5	3.1		1107.0	25.8	3.7		2844.0	33.9	3.4	...
Feb. 6	3019.5	24.0	3.2		1493.5	23.7	3.6		1269.5	25.9	3.1		1081.0	25.4	3.7		2769.0	33.0	3.4	...
" 13	2922.5	23.2	3.1		1433.2	23.8	3.6		1246.5	25.4	3.1		1067.0	26.4	3.9		2785.5	32.6	3.4	...
" 20	2777.0	22.0	3.0		1314.0	23.5	3.5		1217.0	24.3	3.1		1046.5	24.9	3.7		2631.5	31.3	3.6	...
" 27	2639.5	20.9	3.1		...	...	...		1191.0	24.3	3.1		1058.0	25.2	3.9		2589.5	30.8	3.6	...
March 6	2611.0	20.7	3.2		...	...	...		1179.5	24.1	3.1		1011.5	24.1	3.5		2520.5	30.0	3.7	...
" 13	2669.0	21.2	3.2		...	...	...		1134.5	23.2	3.1		1001.0	23.8	3.6		2318.5	30.1	3.5	...
" 20	2590.0	20.6	3.1		...	...	...		1134.5	23.2	3.1		990.5	23.6	3.9		1670.0	30.3	3.6	...
" 27	2178.0	19.9	3.1		...	...	...		...	...	...		999.0	23.7	3.8		...	...	...	...
April 3	...	...	...		...	...	...		...	...	...		20512.5	27.1	3.7		22232.5	31.9	3.5	...
	53338.5	23.9	3.2		17438.5	21.5	3.6		22941.5	26.0	3.1		20512.5	27.1	3.7		22232.5	31.9	3.5	...

1 17 cows.      2 5 days.      3 10 cows.      4 8 cows.      5 5 days.      6 11 cows.

## SUMMARY OF RESULTS.

A. SECTION—FREE VENTILATION.						B. SECTION—RESTRICTED VENTILATION.			
Farm.	No. of cows in each Lot.	Total milk in lb.	Milk per cow per day in lb.	Average per cent of fat.	Average temperature of the byre.	Total milk in lb.	Milk per cow per day in lb.	Average per cent of fat.	Average temperature of the byre.
Newton,	18	53,621.0	24.0	3.3	48.4	53,338.5	23.9	3.2	58.9
Byres,	9	16,969.0	20.9	3.6	47.6	17,438.5	21.5	3.6	57.1
Murthly,	7	22,587.5	25.8	3.3	47.7	22,941.5	26.0	3.1	54.3
Rosalynlee,	6	20,831.0	27.6	3.7	49.4	20,512.5	27.1	3.7	55.4
Pickstonhill,	12	23,891.0	34.3	3.5	53.6	22,232.5	31.9	3.5	59.6
Total	52	137,899.5	...	...	...	136,463.5	...	...	...
Average milk per cow per day for the whole period	...	...	25.7	3.4	...	...	25.4	3.3	...
Difference	...	...	...	...	...	1,436.0	.3	.1	...
Average temperature in proportion to the cows	...	...	...	...	49.4	...	...	...	57.7
Difference	...	...	...	...	8.3	...	...	...	...

*General Result.*

The general result of this second series of experiments corresponds closely with that obtained in the first series.

Neither series can be held to decide the question of the influence of temperature alone on milk yield, since no attempt has been made to determine the effect of combining thoroughly free ventilation with the maintenance of temperature by artificial heat.

Both series have dealt exclusively with the practical question of the influence of greater or less ventilation in combination with the natural body-heat of the cows; and it may be noted that the experiments have not carried this investigation to an extreme point, since even the least ventilated byres under review were cooler and better ventilated than a large proportion of byres throughout the country.

Within the definite limits of the practical problem to which they were directed, the experiments may safely be held to have established with the utmost certainty the fact that the production of milk can be carried on at least as profitably in byres ventilated down to 50° F. as in those whose temperature is kept ten degrees higher by undue restriction of ventilation; and this conclusion may now be accepted without doubt as the basis of future practice.

Incidentally it has been brought out—

(1) That any restriction of ventilation sufficient to bring the temperature of a byre up to 60° F. leads to a degree of atmospheric impurity inconsistent with the conditions of perfect health.

(2) That in byres in which the temperatures have been kept down by thorough ventilation in autumn, cows do not suffer either in health or milk yield even from very low temperatures in winter.

(3) That whatever waste of food may be entailed in the maintenance of the body-heat of cows in colder byres is more than counteracted by the influence of fresher air; while it is evident that the health of animals is much more likely to be promoted by active digestion than by the mere prevention of loss of body-heat. It should also be observed that the colder temperature in autumn causes the cows to grow and to retain thick coats of winter hair; so that it is not even certain that the body-heat is better conserved in the less ventilated byres than in those which permit the animals to retain their natural coverings.

*Practical Rules.*

The practical rules that may be held to arise from the results of these experiments are as follows:—

(1) A careful attempt should be made to give such a degree and kind of ventilation as will, without creating draughts, keep the temperature of the byre always down to 50° F.

(2) Special care should be exercised to keep the temperature of the byre well below this point in autumn and early winter.

The thanks of the Society are due to all who have helped in these series of experiments—to the committees and owners who have placed their herds under investigation, and to the officials, managers, and dairy-workers who have co-operated in the work. On all hands the most cordial and efficient help has been given; and those who have given it may be congratulated on having taken part in an investigation which cannot fail to be useful to the dairying industry.

It may be permissible to mention especially the labours of Mr Hendrick, the Society's chemist, in connection with both series of experiments, and particularly the second; and also the help of Miss Speir, whose interest and experience under the guidance of her late father enabled her to co-operate actively in continuing his work after his death.

Mr Speir himself, in the conception and organisation of these experiments, made a great contribution to that development of Scottish Agriculture which throughout his life he did so much to promote.

#### ROSSLYNLEE.—AVERAGE YIELD PER COW PER WEEK.

##### A SECTION.—FREE VENTILATION.

Week beginning—	1.		2.		3.		4.		5.		6.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Dec. 5	199	3.8	292	3.8	119½	3.4	298½	4.15	177	3.8	250½	3.2
" 12	188½	4.0	290	3.8	114½	4.3	299	4.4	179	3.5	244	3.3
" 19	184	3.6	283	3.8	123½	4.2	289	3.4	177	3.6	245	3.25
" 26	189½	3.7	263½	3.8	117	4.3	294	4.0	176	3.7	245	3.1
1910.												
Jan. 2	183	3.6	255½	3.7	101	3.9	285	3.6	178	3.4	242	2.9
" 9	180½	3.3	251½	3.5	91	4.3	267½	3.3	147	4.2	239	3.25
" 16	182½	4.0	246½	4.0	109	4.0	256½	3.9	141½	4.4	229	3.5
" 23	172½	3.6	241½	3.7	111	4.2	257½	4.2	152	3.7	225½	3.0
" 30	165	3.7	237	3.0	107½	4.2	248½	4.0	168½	3.5	218	3.3
Feb. 6	168	3.3	231	3.8	116½	3.9	245½	3.0	114	4.1	222½	3.5
" 13	169	3.3	240	3.3	109½	3.6	258	4.3	79½	3.7	231	3.3
" 20	176	3.2	231	3.5	113½	3.8	244	3.9	131	3.3	224½	3.5
" 27	177	3.8	237½	3.5	114½	4.0	249½	4.2	130	3.6	223	3.5
March 6	164½	3.0	234½	3.4	104½	3.7	244½	3.8	133	4.5	225	3.3
" 13	165	3.5	222½	3.7	103	4.0	245½	3.95	133½	4.0	223	3.6
" 20	161½	3.7	221½	3.8	102	3.95	237½	4.0	121	4.0	221½	4.0
" 27	161	3.4	227	4.3	98	4.0	234	4.1	111	3.9	192	3.7
April 3	161	3.5	231½	3.7	107	4.3	231	4.3	93½	4.3	175	4.0

ROSSLYNLEE (continued).—

## B SECTION.—RESTRICTED VENTILATION.

Week beginning—	1.		2.		3.		4.		5.		6.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Dec. 5	257	3.3	212	3.3	190 $\frac{1}{2}$	3.7	313	4.2	176 $\frac{1}{2}$	4.2	163	3.7
" 12	258	3.3	214 $\frac{1}{2}$	3.3	188 $\frac{1}{2}$	3.7	313	4.0	172 $\frac{1}{2}$	4.2	170	3.5
" 19	251	3.7	216 $\frac{1}{2}$	3.2	183 $\frac{1}{2}$	3.5	287 $\frac{1}{2}$	4.0	168 $\frac{1}{2}$	4.2	156 $\frac{1}{2}$	3.7
" 26	249	3.2	210 $\frac{1}{2}$	3.2	189	3.8	288	3.8	166 $\frac{1}{2}$	4.1	149	3.5
1910.												
Jan. 2	231 $\frac{1}{2}$	3.2	211	3.3	191 $\frac{1}{2}$	3.2	269	3.8	172 $\frac{1}{2}$	4.1	161 $\frac{1}{2}$	3.6
" 9	233 $\frac{1}{2}$	3.4	203	3.3	185 $\frac{1}{2}$	3.7	269 $\frac{1}{2}$	3.8	176 $\frac{1}{2}$	4.2	150 $\frac{1}{2}$	3.2
" 16	242 $\frac{1}{2}$	3.7	208	3.9	191	3.6	272 $\frac{1}{2}$	3.6	170	3.6	152 $\frac{1}{2}$	3.5
" 23	226	3.7	195	3.3	211 $\frac{1}{2}$	3.7	248	3.6	164 $\frac{1}{2}$	4.6	157 $\frac{1}{2}$	3.4
" 30	216 $\frac{1}{2}$	3.3	183 $\frac{1}{2}$	3.5	192 $\frac{1}{2}$	3.3	226	3.8	153	4.0	141	3.6
Feb. 6	177	3.9	184 $\frac{1}{2}$	3.4	191	4.0	227 $\frac{1}{2}$	3.8	154 $\frac{1}{2}$	3.8	146 $\frac{1}{2}$	3.4
" 13	180	3.7	190	3.8	201	3.8	234	3.7	158	3.9	144	3.4
" 20	178	3.8	174	3.7	191	3.9	236	4.1	153 $\frac{1}{2}$	4.1	134 $\frac{1}{2}$	3.3
" 27	178 $\frac{1}{2}$	3.3	174 $\frac{1}{2}$	3.3	186 $\frac{1}{2}$	3.4	222 $\frac{1}{2}$	4.0	147	4.8	137 $\frac{1}{2}$	3.6
March 6	182 $\frac{1}{2}$	4.0	187 $\frac{1}{2}$	3.8	189 $\frac{1}{2}$	4.0	216	4.2	142	4.1	140 $\frac{1}{2}$	3.3
" 13	175	3.1	178	3.2	189	3.6	208 $\frac{1}{2}$	3.6	132	4.0	129	3.5
" 20	179	3.2	173	3.0	185 $\frac{1}{2}$	3.2	199 $\frac{1}{2}$	4.0	129	4.3	135	4.0
" 27	179	3.3	172 $\frac{1}{2}$	3.0	183	4.0	192	4.2	130	4.3	134	4.0
April 3	183 $\frac{1}{2}$	3.2	177 $\frac{1}{2}$	4.0	160 $\frac{1}{2}$	4.2	204	4.0	132 $\frac{1}{2}$	4.2	135	3.5

BROOMPARK, MURTHLY.—AVERAGE YIELD PER COW  
PER WEEK.

## A SECTION.—FREE VENTILATION.

Week beginning—	1.		2.		3.		4.		5.		6.		7.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	229 $\frac{1}{2}$	3.8	106 $\frac{1}{2}$	3.2	254	3.0	214	3.2	147 $\frac{1}{2}$	3.6	216 $\frac{1}{2}$	3.7	135	3.2
Dec. 5	226	3.7	120 $\frac{1}{2}$	3.2	233 $\frac{1}{2}$	3.5	220	3.0	152 $\frac{1}{2}$	3.0	218 $\frac{1}{2}$	3.3	143	3.5
" 12	230	3.2	125	3.2	219 $\frac{1}{2}$	3.4	229 $\frac{1}{2}$	3.0	155 $\frac{1}{2}$	3.0	216	3.3	147 $\frac{1}{2}$	3.5
" 19	224 $\frac{1}{2}$	3.3	128	3.2	225	3.6	220	3.0	155	3.0	220 $\frac{1}{2}$	3.1	151 $\frac{1}{2}$	3.6
" 26	228 $\frac{1}{2}$	3.3	130	3.2	217 $\frac{1}{2}$	3.6	226 $\frac{1}{2}$	3.1	154	3.0	222	3.0	154 $\frac{1}{2}$	3.4
1910.														
Jan. 2	231 $\frac{1}{2}$	3.3	126	3.1	226	3.4	235 $\frac{1}{2}$	3.0	145	3.0	232	3.1	160	3.4
" 9	234	3.4	127 $\frac{1}{2}$	3.4	218 $\frac{1}{2}$	3.2	233	3.3	140 $\frac{1}{2}$	3.2	232	3.1	163 $\frac{1}{2}$	3.1
" 16	234 $\frac{1}{2}$	3.4	128 $\frac{1}{2}$	3.3	216 $\frac{1}{2}$	3.2	234	3.0	140	3.4	225 $\frac{1}{2}$	3.2	170 $\frac{1}{2}$	3.2
" 23	220	3.5	128 $\frac{1}{2}$	3.3	197	3.4	222	3.2	140	3.2	209	3.3	164 $\frac{1}{2}$	3.4
" 30	224	3.5	122 $\frac{1}{2}$	3.4	204	3.4	232 $\frac{1}{2}$	3.1	134	3.3	219	3.2	166 $\frac{1}{2}$	3.2
Feb. 6	225	3.5	129 $\frac{1}{2}$	3.4	204	3.4	227 $\frac{1}{2}$	3.2	123 $\frac{1}{2}$	3.3	220 $\frac{1}{2}$	3.3	166	3.2
" 13	214 $\frac{1}{2}$	3.5	132	3.2	201 $\frac{1}{2}$	3.5	222	3.1	109	3.3	218 $\frac{1}{2}$	3.3	172 $\frac{1}{2}$	3.3
" 20	211 $\frac{1}{2}$	3.5	126	3.2	198	3.0	213 $\frac{1}{2}$	3.3	82	3.7	212	3.5	168	3.3
" 27	218 $\frac{1}{2}$	3.3	120 $\frac{1}{2}$	3.3	195 $\frac{1}{2}$	3.2	217 $\frac{1}{2}$	3.0	58 $\frac{1}{2}$	3.8	201	3.6	163 $\frac{1}{2}$	3.2
March 6	206	3.4	116	3.2	195	3.4	215 $\frac{1}{2}$	3.0	37 $\frac{1}{2}$	3.3	204	3.2	163	3.4
" 13	208 $\frac{1}{2}$	3.5	113	3.3	197	3.5	222 $\frac{1}{2}$	3.0	20	3.5	207 $\frac{1}{2}$	3.4	152	3.4
" 20	208	3.5	108 $\frac{1}{2}$	3.3	191	3.3	213 $\frac{1}{2}$	3.0	5 $\frac{1}{2}$	3.2	191	3.5	161 $\frac{1}{2}$	3.3
" 27	205 $\frac{1}{2}$	3.4	103	3.4	190	3.4	209	3.0	...	...	197	3.2	159	3.4

## 3BROOMPARK (continued)—

## B SECTION.—RESTRICTED VENTILATION.

Week beginning—	1.		2.		3.		4.		5.		6.		7.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	143	2.7	121 $\frac{1}{2}$	3.0	259 $\frac{1}{2}$	2.7	168	3.3	195 $\frac{1}{2}$	3.4	180	3.3	241	3.3
Dec. 5	155	3.5	122 $\frac{1}{2}$	3.4	255 $\frac{1}{2}$	2.6	166 $\frac{1}{2}$	2.9	190	3.4	172 $\frac{1}{2}$	3.3	239	3.0
" 12	155 $\frac{1}{2}$	3.4	130 $\frac{1}{2}$	3.2	257 $\frac{1}{2}$	2.6	172 $\frac{1}{2}$	3.2	189 $\frac{1}{2}$	3.3	186 $\frac{1}{2}$	2.9	253 $\frac{1}{2}$	3.0
" 19	155 $\frac{1}{2}$	3.6	126 $\frac{1}{2}$	3.3	253	2.7	176	3.1	186	3.3	198	3.1	253 $\frac{1}{2}$	3.1
" 26	157	3.6	130	3.2	247 $\frac{1}{2}$	2.6	174	3.1	183	3.4	189	2.9	256	3.1
1910.														
Jan. 2	151	3.5	134	3.3	259	3.2	161	2.7	181 $\frac{1}{2}$	3.1	187	3.3	260 $\frac{1}{2}$	2.9
" 9	155	3.4	136	3.3	260	2.6	175 $\frac{1}{2}$	3.1	179	3.5	181 $\frac{1}{2}$	2.7	269	2.9
" 16	154	3.5	140	3.2	252 $\frac{1}{2}$	2.7	176	3.1	176 $\frac{1}{2}$	3.1	172	2.8	262 $\frac{1}{2}$	3.0
" 23	149 $\frac{1}{2}$	3.4	137 $\frac{1}{2}$	3.3	247	2.7	171 $\frac{1}{2}$	3.1	164 $\frac{1}{2}$	3.2	163 $\frac{1}{2}$	2.9	260	3.0
" 30	148	3.4	141 $\frac{1}{2}$	3.4	253	2.9	171 $\frac{1}{2}$	3.1	162	3.4	172	2.7	265 $\frac{1}{2}$	3.0
Feb. 6	146	3.5	143	3.3	248 $\frac{1}{2}$	2.8	170 $\frac{1}{2}$	3.3	161	3.3	167 $\frac{1}{2}$	2.7	262	2.9
" 13	139	3.5	138	3.2	239	2.7	173	3.5	152 $\frac{1}{2}$	3.3	163 $\frac{1}{2}$	2.8	264 $\frac{1}{2}$	2.9
" 20	133	3.5	133 $\frac{1}{2}$	3.4	237 $\frac{1}{2}$	2.7	176	3.4	145	3.5	168	2.9	253 $\frac{1}{2}$	3.0
" 27	121 $\frac{1}{2}$	3.3	137	3.5	211 $\frac{1}{2}$	2.7	166 $\frac{1}{2}$	3.3	148	3.5	172	2.9	260 $\frac{1}{2}$	3.0
March 6	115	3.5	132 $\frac{1}{2}$	3.3	214 $\frac{1}{2}$	2.7	163	3.2	151	3.5	153	2.9	262	3.0
" 13	105 $\frac{1}{2}$	3.6	125 $\frac{1}{2}$	3.6	223	2.8	164	3.1	140	3.5	158	2.9	269 $\frac{1}{2}$	2.9
" 20	92 $\frac{1}{2}$	3.3	118 $\frac{1}{2}$	3.6	224	2.8	159 $\frac{1}{2}$	3.0	137	3.6	158	2.9	245	3.0
" 27	77	3.3	119	3.5	219	2.8	164 $\frac{1}{2}$	3.2	131 $\frac{1}{2}$	3.6	158 $\frac{1}{2}$	2.9	265	3.0

## PICTSTONHILL.—AVERAGE YIELD PER COW PER WEEK.

## A SECTION.—FREE VENTILATION.

Week beginning—	1.		2.		3.		4.		5.		6.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1910.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Feb. 1	1181 $\frac{1}{2}$	3.3	171 $\frac{1}{2}$	3.4	217	3.5	190 $\frac{1}{2}$	3.5	200	3.9	155	4.1
" 6	246	3.1	227 $\frac{1}{2}$	3.4	291 $\frac{1}{2}$	3.3	245 $\frac{1}{2}$	3.6	285 $\frac{1}{2}$	3.8	214	3.9
" 13	234	3.5	228	3.2	292	3.3	252 $\frac{1}{2}$	3.6	285	3.6	211	4.0
" 20	236 $\frac{1}{2}$	3.5	218 $\frac{1}{2}$	3.3	283 $\frac{1}{2}$	3.5	242	3.5	293	2.9	195 $\frac{1}{2}$	3.8
" 27	230 $\frac{1}{2}$	4.0	207 $\frac{1}{2}$	3.9	277 $\frac{1}{2}$	3.7	228 $\frac{1}{2}$	4.0	270 $\frac{1}{2}$	3.7	195 $\frac{1}{2}$	3.8
March 6	218	3.5	214 $\frac{1}{2}$	3.4	277	3.6	226	3.0	263 $\frac{1}{2}$	2.8	185	4.4
" 13	213 $\frac{1}{2}$	3.3	209	3.6	265 $\frac{1}{2}$	3.0	216	3.1	251 $\frac{1}{2}$	3.8	190 $\frac{1}{2}$	3.4
" 20	216 $\frac{1}{2}$	3.5	203 $\frac{1}{2}$	3.6	259	3.0	209 $\frac{1}{2}$	3.4	262 $\frac{1}{2}$	3.5	197	4.1
" 27	159 $\frac{1}{2}$	3.2	150	3.4	192 $\frac{1}{2}$	2.5	151 $\frac{1}{2}$	3.5	187	3.4	141 $\frac{1}{2}$	3.5

<sup>1</sup> Five days.<sup>2</sup> Five days.



PICTSTONHILL (*continued*)—A SECTION.—FREE VENTILATION—*continued*.

Week beginning—	7.		8.		9.		10.		11.		12.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1910.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Feb. 1	1228	3.5	180	3.6	131½	4.1	150	3.6	195	3.6	202½	3.9
" 6	306½	3.0	237½	3.3	232½	4.1	201½	3.8	264½	3.5	293½	3.3
" 13	300½	3.1	225	3.1	256	3.5	204½	3.8	266½	3.6	289½	3.3
" 20	275½	3.3	221½	3.0	247	3.5	202½	3.4	262	3.8	286½	3.4
" 27	266½	3.4	217	2.9	238	3.2	182½	3.7	250½	3.8	271	3.3
March 6	263	3.4	210	3.5	215	3.9	195	3.6	246½	3.5	275½	3.7
" 13	258	3.7	205	3.6	210	3.4	164	4.0	248½	3.9	266½	3.5
" 20	250	3.5	200	3.8	203½	3.4	2...	...	244½	3.5	270	3.0
" 27	1170½	3.0	136½	3.4	143½	3.4	...	...	169	3.4	196	3.9

1 Five days.

2 No. 10 off.

## B SECTION.—RESTRICTED VENTILATION.

Week beginning—	1.		2.		3.		4.		5.		6.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1910.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Feb. 1	1172½	3.5	161½	3.8	129½	3.6	198½	3.2	223	3.3	205	3.3
" 6	233½	3.4	221½	3.5	170½	3.5	257	2.7	306½	3.3	276	3.3
" 13	233	3.5	210	3.8	169	3.5	255½	3.0	294	3.4	260	3.5
" 20	232½	3.5	218½	3.4	166	3.6	253	2.9	295	3.6	249½	2.7
" 27	231	3.6	221½	4.0	161	3.7	238	3.3	287	3.4	258½	3.3
March 6	226½	3.4	216½	3.7	159½	3.5	234	3.6	293	3.0	259	3.2
" 13	221½	3.5	218	3.8	153	4.1	233	3.6	297½	3.5	259½	3.8
" 20	226	3.2	222	3.3	140	4.3	240	2.6	245½	3.7	250½	3.6
" 27	1163	3.9	155	3.8	94	3.7	170½	2.9	172	3.4	175½	3.6

1 Five days.

B SECTION.—RESTRICTED VENTILATION—*continued*.

Week beginning—	7.		8.		9.		10.		11.		12.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1910.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Feb. 1	1135	3.7	154½	3.1	164½	4.0	205½	3.6	249	3.1	155½	3.8
" 6	181½	3.8	212½	3.1	188½	3.8	268	3.4	322	3.2	206½	3.9
" 13	183	3.9	215½	2.8	209	3.6	232½	3.6	301½	3.3	206	3.6
" 20	180½	3.8	199	3.4	194½	3.7	256	3.3	291½	3.4	199½	3.5
" 27	176	4.0	179	3.1	184½	3.8	239½	3.6	279½	3.2	176	4.1
March 6	157	3.6	189½	3.6	178½	3.8	247½	4.2	253	4.1	175½	4.2
" 13	129½	4.3	173½	2.9	185½	3.9	233½	3.3	243	3.4	168	4.2
" 20	2...	...	166½	2.9	187	3.9	234½	3.5	234	3.5	172½	3.9
" 27	1...	...	126	3.3	166	3.9	167	3.8	167	3.9	114	4.0

1 Five days.

2 No. 7 off.

## BYRES.—AVERAGE YIELD PER COW PER WEEK.

## A SECTION.—FREE VENTILATION.

Week beginning—	1.		2.		3.		4.		5.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	137 $\frac{3}{4}$	3.34	148	4.03	118 $\frac{1}{2}$	3.58	105	3.27	51 $\frac{1}{2}$	4.35
Dec. 5	127 $\frac{1}{2}$	3.07	154 $\frac{3}{4}$	3.87	123 $\frac{3}{4}$	3.60	45	4.41	49 $\frac{1}{2}$	4.22
" 12	109 $\frac{1}{2}$	3.20	146 $\frac{1}{2}$	3.73	124 $\frac{1}{2}$	3.42	80 $\frac{1}{2}$	3.98	40 $\frac{1}{2}$	4.40
" 19	102 $\frac{1}{2}$	3.16	123 $\frac{3}{4}$	4.13	111 $\frac{1}{2}$	3.53	82 $\frac{1}{2}$	3.55	24 $\frac{1}{2}$	4.21
" 26	96 $\frac{1}{2}$	3.07	142	4.01	109 $\frac{1}{2}$	3.62	79 $\frac{1}{2}$	3.50	253 $\frac{1}{2}$	3.80
1910.										
Jan. 2	92 $\frac{1}{2}$	3.10	147 $\frac{1}{2}$	3.93	112 $\frac{1}{2}$	3.63	81 $\frac{1}{2}$	3.46	305	3.32
" 9	90 $\frac{1}{2}$	3.20	138 $\frac{1}{2}$	4.20	101 $\frac{1}{2}$	3.87	78 $\frac{1}{2}$	3.95	310	3.43
" 16	86	3.28	128 $\frac{1}{2}$	4.20	98 $\frac{1}{2}$	3.85	48 $\frac{1}{2}$	4.32	79 $\frac{1}{2}$	3.92
" 23	77 $\frac{1}{2}$	3.27	119	4.40	85 $\frac{1}{2}$	3.92	42 $\frac{1}{2}$	4.47	69	4.47
" 30	75 $\frac{1}{2}$	3.13	105 $\frac{1}{2}$	4.06	81 $\frac{1}{2}$	3.74	62 $\frac{1}{2}$	4.74	272 $\frac{3}{4}$	3.31
Feb. 6	75	3.30	96 $\frac{1}{2}$	3.92	82	3.62	49 $\frac{1}{2}$	5.00	299 $\frac{1}{2}$	3.21
" 13	74	3.02	96 $\frac{1}{2}$	4.07	82 $\frac{3}{4}$	3.68	...	...	297	3.35
" 20	66 $\frac{1}{2}$	2.96	92 $\frac{1}{2}$	4.04	81	3.83	...	...	290 $\frac{1}{2}$	3.28

## A SECTION.—FREE VENTILATION—continued.

Week beginning—	6.		7.		8.		9.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	64 $\frac{3}{4}$	4.12	139 $\frac{1}{2}$	6.28	288 $\frac{3}{4}$	3.73	165 $\frac{3}{4}$	3.27
Dec. 5	70 $\frac{1}{2}$	3.77	216	5.81	238	3.54	169 $\frac{1}{2}$	3.37
" 12	69 $\frac{1}{2}$	3.50	213 $\frac{3}{4}$	4.44	194 $\frac{1}{2}$	3.73	164 $\frac{1}{2}$	3.35
" 19	64 $\frac{1}{2}$	3.55	222 $\frac{1}{2}$	4.20	188	2.95	159 $\frac{1}{2}$	3.41
" 26	58 $\frac{1}{2}$	3.80	225 $\frac{3}{4}$	4.20	202 $\frac{3}{4}$	2.67	154 $\frac{3}{4}$	3.63
1910.								
Jan. 2	64	3.67	218 $\frac{1}{2}$	3.94	205	3.07	155	3.65
" 9	59 $\frac{3}{4}$	3.78	226 $\frac{3}{4}$	3.90	189	3.17	138 $\frac{1}{2}$	3.78
" 16	278 $\frac{3}{4}$	3.63	235	3.90	187	3.40	155 $\frac{1}{2}$	3.72
" 23	248	3.63	239 $\frac{1}{2}$	3.62	160 $\frac{1}{2}$	3.39	142 $\frac{1}{2}$	4.00
" 30	294 $\frac{1}{2}$	3.44	233 $\frac{3}{4}$	3.38	170 $\frac{1}{2}$	3.20	141 $\frac{1}{2}$	3.83
Feb. 6	310 $\frac{1}{2}$	3.52	249 $\frac{1}{2}$	3.44	168 $\frac{3}{4}$	2.95	155 $\frac{1}{2}$	3.77
" 13	283 $\frac{3}{4}$	3.53	237 $\frac{1}{2}$	3.35	145 $\frac{1}{2}$	3.05	142 $\frac{1}{2}$	4.05
" 20	274	3.21	224 $\frac{1}{2}$	3.14	130	2.85	130 $\frac{1}{2}$	3.99

BYRES (*continued*)—

## B SECTION.—RESTRICTED VENTILATION.

Week beginning—	1.		2.		3.		4.		5.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	195 $\frac{1}{2}$	2.88	208	3.78	77	4.12	91 $\frac{1}{2}$	5.53	97 $\frac{3}{4}$	3.54
Dec. 5	196 $\frac{1}{2}$	2.90	225 $\frac{1}{2}$	3.70	72 $\frac{1}{2}$	4.32	224 $\frac{1}{2}$	4.75	92	3.43
" 12	177	2.80	232 $\frac{1}{2}$	3.92	74 $\frac{1}{2}$	4.39	192 $\frac{1}{2}$	4.27	80 $\frac{1}{2}$	3.53
" 19	181 $\frac{1}{2}$	2.80	217 $\frac{1}{2}$	4.05	74 $\frac{1}{2}$	4.44	203 $\frac{1}{2}$	3.75	87	3.42
" 26	182 $\frac{1}{2}$	2.76	229 $\frac{1}{2}$	4.02	71 $\frac{1}{2}$	4.67	245 $\frac{1}{2}$	3.47	81	3.58
1910.										
Jan. 2	179 $\frac{1}{2}$	2.82	236 $\frac{1}{2}$	3.92	68 $\frac{1}{2}$	4.65	252 $\frac{1}{2}$	3.10	88	3.67
" 9	177	3.02	2.0	4.05	68 $\frac{1}{2}$	4.92	248 $\frac{1}{2}$	3.42	89 $\frac{1}{2}$	3.87
" 16	171 $\frac{1}{2}$	3.11	220 $\frac{1}{2}$	4.06	62	5.35	268	3.27	81 $\frac{1}{2}$	4.03
" 23	156 $\frac{1}{2}$	2.76	223 $\frac{1}{2}$	3.86	56 $\frac{1}{2}$	5.37	223	3.64	76	4.23
" 30	172 $\frac{1}{2}$	2.87	225 $\frac{1}{2}$	3.72	261 $\frac{1}{2}$	3.96	257 $\frac{1}{2}$	3.07	82	4.05
Feb. 6	181 $\frac{1}{2}$	3.00	220 $\frac{1}{2}$	3.52	256 $\frac{1}{2}$	4.27	258 $\frac{1}{2}$	2.97	75 $\frac{1}{2}$	4.05
" 13	172 $\frac{1}{2}$	2.98	213	3.66	253 $\frac{1}{2}$	3.70	245 $\frac{1}{2}$	3.02	...	...
" 20	163 $\frac{1}{2}$	3.00	209 $\frac{1}{2}$	3.60	244 $\frac{1}{2}$	3.46	246 $\frac{1}{2}$	2.96	...	...

B SECTION.—RESTRICTED VENTILATION—*continued*.

Week beginning—	6.		7.		8.		9.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	126 $\frac{1}{2}$	3.34	146 $\frac{1}{2}$	3.45	167	3.37	84 $\frac{1}{2}$	3.80
Dec. 5	127 $\frac{1}{2}$	3.37	145	3.12	180 $\frac{1}{2}$	3.19	88	3.75
" 12	115 $\frac{1}{2}$	3.42	127 $\frac{1}{2}$	3.32	166 $\frac{1}{2}$	3.42	76 $\frac{3}{4}$	4.10
" 19	122	3.55	132 $\frac{3}{4}$	3.30	167 $\frac{3}{4}$	3.30	78 $\frac{3}{4}$	3.96
" 26	124 $\frac{1}{2}$	3.80	157	3.50	162	3.40	77	4.17
1910.								
Jan. 2	129 $\frac{1}{2}$	3.75	160	3.42	177 $\frac{1}{2}$	3.34	79 $\frac{1}{2}$	4.15
" 9	122 $\frac{3}{4}$	3.83	153 $\frac{1}{2}$	3.53	170 $\frac{1}{2}$	3.61	77 $\frac{1}{2}$	4.20
" 16	101	3.97	152 $\frac{1}{2}$	3.51	164 $\frac{1}{2}$	3.65	71 $\frac{1}{2}$	4.35
" 23	89 $\frac{1}{2}$	3.75	147 $\frac{1}{2}$	3.55	155	3.50	64 $\frac{1}{2}$	4.55
" 30	103 $\frac{1}{2}$	3.57	156	3.30	162 $\frac{1}{2}$	3.45	64 $\frac{1}{2}$	4.33
Feb. 6	111 $\frac{1}{2}$	3.64	158 $\frac{3}{4}$	3.52	167	3.35	64 $\frac{3}{4}$	4.30
" 13	112	3.72	123 $\frac{1}{2}$	3.88	151 $\frac{1}{2}$	3.35	56 $\frac{1}{2}$	4.24
" 20	100	3.72	147 $\frac{1}{2}$	3.80	148 $\frac{3}{4}$	3.35	54	4.25

## NEWTON.—AVERAGE YIELD PER COW PER WEEK.

## A SECTION.—FREE VENTILATION.

Week beginning—	1.		2.		3.		4.		5.		6.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	190½	2.99	170	3.48	281	4.06	207	3.99	177½	3.88	176½	3.75
Dec. 5	187½	4.44	162	3.15	286	3.37	213½	3.80	174	3.65	157	3.87
" 12	176½	2.76	168½	3.50	282	3.30	210	3.65	171	3.39	163½	3.80
" 19	173½	2.77	164½	3.30	273	3.20	195	3.65	171	3.43	168½	3.27
" 26	178	2.73	168½	3.35	277½	3.46	195	3.76	178½	3.56	169½	3.55
1910.												
Jan. 2	166	2.92	166	3.60	257	3.52	176	3.83	167	3.35	164½	3.37
" 9	169½	2.90	167	3.30	251	3.31	181½	3.60	165½	3.63	169½	3.35
" 16	161½	2.99	159½	3.29	242½	3.56	188	3.82	166½	3.47	165½	3.43
" 23	162	2.82	165½	3.60	237	3.41	183½	3.69	164	3.62	162½	3.77
" 30	153	3.04	166½	3.40	217½	3.55	182½	3.67	159	3.61	168½	3.55
Feb. 6	151½	2.79	163½	3.50	227	3.42	187½	3.74	165½	3.62	175½	3.38
" 13	145	2.85	169	3.31	216½	3.40	179	3.40	163	3.33	174½	3.51
" 20	146½	2.71	155½	3.27	209	3.28	162	3.57	159½	3.22	162	3.22
" 27	136	2.81	154½	3.43	208	3.49	159½	3.71	152	3.50	144½	3.31
March 6	107½	2.97	161½	3.43	209	3.42	173	3.51	159	3.29	156	3.55
" 13	104	3.02	169½	3.56	209½	3.48	161	3.88	148	3.65	158½	3.44
" 20	108	2.97	158	3.56	207½	3.29	157½	3.65	152½	3.60	144½	3.40
" 27	80	2.66	188	3.28	156	3.26	177½	3.52	107½	3.70	101	3.58

1 Five days.

## A SECTION.—FREE VENTILATION—continued.

Week beginning—	7.		8.		9.		10.		11.		12.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	145½	2.82	218½	3.54	184	3.20	174	3.64	181	3.91	236	3.60
Dec. 5	177½	3.84	228	3.68	170½	2.85	172	3.17	168	3.75	242	3.24
" 12	168	3.69	212½	3.15	170	2.91	165½	3.45	168	3.82	208	3.23
" 19	162½	3.54	218	3.15	162½	2.99	156	3.21	167½	3.74	215½	3.06
" 26	158	3.53	220½	3.35	179½	3.05	171½	3.23	161	3.75	202	2.78
1910.												
Jan. 2	160	3.47	208½	3.21	166½	2.76	167	3.80	157	3.68	185	2.82
" 9	156½	3.53	208½	3.35	164½	3.12	167½	3.29	159	3.87	179½	2.78
" 16	147½	3.56	198½	3.25	149½	2.98	164	3.42	172½	3.95	161½	2.82
" 23	148½	3.66	204	3.47	146	2.86	167	3.54	141½	3.80	166½	2.70
" 30	145	3.55	202½	3.43	128½	2.97	162	3.15	123½	3.80	157½	3.00
Feb. 6	148½	3.67	209½	3.30	113½	2.80	167	3.35	141½	3.77	143½	2.67
" 13	147	3.41	213	2.95	85½	2.56	178	3.00	133½	3.78	144½	2.70
" 20	133	3.35	210	3.16	55½	2.44	167	2.96	128	3.59	143½	2.70
" 27	138½	3.46	193	3.04	72½	2.84	159½	3.05	129½	3.56	143½	2.83
March 6	136½	3.41	202	3.05	81½	2.92	155	3.02	123	3.77	139	2.73
" 13	125½	3.60	200	3.22	80	2.93	158	3.05	119½	3.78	143½	2.81
" 20	136½	3.57	192½	3.23	73	2.89	155½	3.05	144	3.56	143½	2.81
" 27	192	3.58	185½	2.87	43	2.62	108½	2.85	35	3.43	82	2.63

1 Five days.

NEWTON (*continued*)—A SECTION.—FREE VENTILATION—*continued*.

Week beginning—	13.		14.		15.		16.		17.		18.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 23	150	3·61	199	2·92	160½	3·40	224½	3·45	169½	3·15	181½	3·39
Dec. 5	152	2·92	187½	2·65	147	3·35	218½	2·80	178	3·01	171½	3·27
" 12	143	3·61	178½	3·00	148½	3·25	215	3·23	153	3·18	166	3·39
" 19	210	3·18	188	2·65	135	3·33	207½	2·99	152	2·89	163	3·04
" 26	273	3·12	183	2·71	161	3·54	205½	2·90	151½	2·95	160½	3·26
1910.												
Jan. 2	273½	3·10	171½	2·70	161½	3·45	204	3·18	137½	3·03	155	3·13
" 9	274½	3·28	174½	2·77	159½	3·42	198	3·09	135	2·94	156	3·15
" 16	272½	3·15	168½	2·84	156	3·59	184	3·13	172½	3·06	151½	3·21
" 23	267	3·05	165	2·64	154	3·60	174½	3·70	127½	3·11	148½	3·14
" 30	250	3·01	159	2·85	152	3·59	166½	3·06	117½	3·10	146½	3·23
Feb. 6	257½	2·95	157½	2·71	151½	3·68	170½	2·81	114	2·90	141½	2·97
" 13	247½	2·93	150½	2·79	140½	3·31	164½	2·85	119½	2·81	141½	2·95
" 20	216	2·72	136	2·60	149½	3·37	164	2·79	96½	2·93	132½	3·07
" 27	205	3·05	126	2·81	134½	3·62	149	2·96	128½	2·89	129½	3·07
March 6	200½	2·99	127½	2·95	140	3·78	156½	2·92	143	2·84	129½	2·90
" 13	200	2·95	116½	2·92	136½	3·65	146	2·95	143½	2·95	123	3·15
" 20	194	3·07	106½	3·04	131½	3·64	142½	2·83	140	3·06	113	3·09
" 27	139½	2·76	66	2·82	84½	3·70	100	2·85	96	2·96	71½	3·33

1 Five days.

## B SECTION.—RESTRICTED VENTILATION.

Week beginning—	1.		2.		3.		4.		5.		6.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	221	3·21	177	3·19	179½	3·20	162	3·51	192½	4·06	208	3·84
Dec. 5	219½	3·10	173½	2·65	169	2·56	147	3·26	190½	3·51	200	3·05
" 12	223½	3·41	187	2·53	170½	2·90	157½	3·25	196½	3·58	197	3·50
" 19	224½	3·00	184½	2·58	164½	2·83	154	3·35	175	3·56	193½	3·37
" 26	221½	3·10	186	3·08	175	3·02	157½	3·15	196½	3·00	188½	3·32
1910.												
Jan. 2	213	2·95	186½	2·73	163½	2·65	154½	3·40	173½	3·46	172½	3·41
" 9	217½	3·07	173½	2·94	169½	2·82	153	3·35	179	3·60	176	3·27
" 16	215½	3·01	175	2·90	154½	2·85	155½	3·42	175	3·50	174	3·23
" 23	218½	3·06	171	2·60	147½	2·60	163½	3·15	169½	3·62	168	3·21
" 30	206	3·00	168½	2·82	134½	2·76	161	3·18	166½	3·63	158½	3·29
Feb. 6	211½	2·90	166	2·95	133½	2·82	157	3·34	174½	3·40	159	3·42
" 13	206	3·09	163	2·80	109½	2·61	157	3·40	173	3·36	156½	3·40
" 20	199	2·96	152	2·59	96½	2·71	141½	3·30	166	3·45	152½	3·35
" 27	198	3·00	149	2·81	86½	2·72	133½	3·28	161	3·42	140	3·49
March 6	195½	3·20	153	3·02	84½	3·05	133	3·48	167½	3·55	125½	3·57
" 13	197	3·22	153½	3·12	76	2·71	136	3·46	170	3·58	187	3·41
" 20	195½	3·08	147½	3·15	60½	3·00	133½	3·27	173	3·35	125½	3·55
" 27	140½	3·05	104	2·95	37	2·75	91	3·23	121	3·58	84½	3·46

1 Five days.

NEWTON (*continued*)—B SECTION.—RESTRICTED VENTILATION—*continued*.

Week beginning—	7.		8.		9.		10.		11.		12.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	201	3.51	173½	3.60	...	...	146½	3.51	184	3.56	161	2.96
Dec. 5	197½	3.10	181	3.08	213	4.18	188½	3.39	177½	3.35	132	3.00
" 12	191	3.49	173½	3.64	230	3.90	149½	3.43	172½	3.13	141½	2.98
" 19	183	3.04	176	3.25	201	3.72	152	3.39	162½	3.70	142½	3.10
" 26	191½	3.17	174	3.03	203	3.31	155	3.31	163½	3.24	144½	2.98
1910.												
Jan. 2	181	3.28	164½	3.15	190	3.70	150½	3.15	171½	3.25	135	3.34
" 9	181½	3.29	167½	3.38	181	3.69	153	3.28	155½	3.57	128½	3.16
" 16	179	3.21	163½	3.56	177	3.34	147	3.58	155½	3.51	129½	3.15
" 23	175½	3.23	161	3.53	173	3.45	147	3.59	145½	3.37	128½	2.85
" 30	174½	3.32	168	3.31	166	3.45	149½	3.50	141½	3.57	127½	3.06
Feb. 6	173	3.38	166½	3.37	166½	3.46	155½	3.28	143½	3.37	125	3.14
" 13	174½	3.14	154	3.38	160	3.24	164	3.24	139½	3.29	133	2.99
" 20	174½	3.15	131½	3.48	147½	3.13	160½	3.17	131	3.26	129½	2.88
" 27	146	3.44	148	3.25	140½	3.25	159	3.00	128½	3.20	117½	3.00
March 6	160½	3.51	139½	3.56	136½	3.24	154	3.10	125½	3.48	124	3.05
" 13	167	3.35	141	3.32	141	3.23	156	3.12	124½	3.45	117	3.27
" 20	165	3.33	150½	3.30	129	3.03	154½	3.12	124½	3.35	122	3.22
" 27	104	3.47	100	3.28	84	3.06	101½	3.00	88½	3.03	86½	3.12

B SECTION.—RESTRICTED VENTILATION—*continued*.

Week beginning—	13.		14.		15.		16.		17.		18.	
	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.	Milk.	Fat.
1909.	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%	lb.	%
Nov. 28	226½	3.10	174½	3.40	214½	3.14	276	3.36	206½	3.10	165½	4.35
Dec. 5	217½	2.78	157½	2.74	201½	2.88	269½	3.53	209	3.41	158	3.42
" 12	222½	2.63	163	3.10	215½	2.80	261	3.12	202	2.83	166½	3.35
" 19	206½	2.86	156½	3.15	207½	2.81	259	2.87	204	3.05	167	3.22
" 26	221½	3.08	162½	3.12	202½	3.08	253½	2.90	204½	3.06	172	3.20
1910.												
Jan. 2	209	2.98	153½	3.10	190½	2.97	236½	2.60	200½	2.97	167½	3.16
" 9	200½	3.07	149	3.30	192½	2.98	238	2.77	198½	3.03	168	3.55
" 16	204	2.87	148	3.27	187	3.01	226	2.66	196½	3.01	161½	3.36
" 23	208½	3.03	143	3.10	185	2.64	226	2.70	197	3.11	156½	3.29
" 30	202½	2.86	145	3.26	182½	3.19	226	2.73	154	3.34	155½	3.27
Feb. 6	197½	3.04	148	3.13	190	2.94	207	2.65	188	3.12	167½	3.20
" 13	202½	2.96	132	2.94	165½	2.80	190	2.80	190	3.10	145	3.11
" 20	173	3.01	126	2.99	176	2.75	185	2.69	188½	3.00	151½	2.96
" 27	145	3.45	125	3.08	176	2.74	167	2.60	180½	3.00	133½	3.06
March 6	147½	3.49	127	3.12	164	2.95	169½	2.66	178	3.03	128	3.20
" 13	157½	3.33	125	3.11	171½	2.82	177½	2.78	185½	3.03	136	3.24
" 20	140	3.33	122½	3.00	158	2.75	165½	2.65	190	2.87	132½	3.05
" 27	108½	3.17	86	2.95	105½	2.63	116	2.60	138½	2.77	96	2.95

1 Five days.

## IMPROVEMENT OF HILL PASTURE AS DETERMINED BY THE EFFECT ON STOCK.

### FINAL REPORT.

By JAMES HENDRICK, B.Sc., F.I.C.

#### *Introductory.*

THE following is the third and final report upon a series of experiments on the improvement of poor hill pasture by the application of manures and by cake-feeding, which were begun in 1901, and which have therefore been continued for ten years. The experiments were started at the suggestion of the Board of Agriculture, which gave each year a grant towards the cost.

The Highland and Agricultural Society and the West of Scotland Agricultural College co-operated in laying down experiments on a uniform plan at seven different centres. Three of these were in the East of Scotland, and were directly under the supervision of the Directors of the Highland and Agricultural Society, while four were in the West of Scotland, and were under the supervision of the West of Scotland Agricultural College. All the experiments in the West of Scotland were discontinued at the end of, or before, the seventh season. Only the three experiments in the East of Scotland have been continued to the end of the tenth season.

It was intended that the Chemist of the Highland Society should have general supervision of, and should report upon, all the experiments, but after the death of my predecessor, Dr Aitken, his place was taken, so far as these experiments were concerned, by Dr Wilson of Carbeth, who prepared the first report upon the experiments. This report was published in the 'Transactions' for 1905, pp. 271-295 (5th ser., vol. xvii.), and deals with the four years 1901 to 1904. The second report was prepared by the present writer, and carries on the account of the work to the end of the seventh season. It was published in the 'Transactions' for 1908, pp. 269-304 (5th ser., vol. xx.) These reports were also issued as bulletins, Nos. 32 and 48, of the West of Scotland Agricultural College.

It is unnecessary here to repeat what has been stated in the earlier reports as to the origin of these experiments. They sprang from the Cockle Park experiments, which were commenced by Professor Somerville at the Northumberland County Demonstration Farm in 1896, and were intended to test inde-

pendently on poor hill pastures in Scotland the chief of the remarkable results obtained in those experiments. Quite a number of similar experiments have been carried out at other centres in both England and Scotland. An account of the Cockle Park experiments, together with a summary of the chief results of the other experiments of a similar kind which sprang from them, was recently published by Professor Somerville as a Supplement to 'The Journal of the Board of Agriculture,' vol. xvii., No. 10, January 1911.

The importance of pasture to the agriculture of this country is so well known and has been so often written about that it is unnecessary to refer to it further here. Any method by which the poor pasture of the country can be economically improved is of great value to our agriculture. It is not easy to measure the improvement in pasture produced by any system of treatment. To allow the crop to grow, and cut, and weigh it, is no measure of the improvement, for when the crop is allowed to grow up the character of the herbage is altered, and it is no longer pasture but hay. A still more fatal objection is that the weight of material yielded is no measure of the improvement, which depends more on quality than on weight. Even if the produce yielded be analysed as well as weighed, the improvement is not measured by the analysis; for it is well known that in the case of fodder plants differences in digestibility, palatability, and other properties which profoundly affect the nutritive properties, are not necessarily related to the composition, as shown by the ordinary conventional analysis. Our analytical processes still require to be greatly improved before they will become even approximate measures of the nutritive values of different fodders.

### *Methods of Experiment.*

On account of these difficulties it is necessary, in order to obtain a real measure of the improvement, to pasture animals upon the land which has been manured or otherwise treated, and estimate the increase which they give in comparison with similar animals pastured upon an untreated portion of the same land. This is a very cumbersome and troublesome method, and it requires many years to carry it out thoroughly. This was the method adopted in the Cockle Park experiments by Professor Somerville, and, following him, by all others who have carried out experiments to test the Cockle Park results.

In the East of Scotland experiments, which are the only ones dealt with in this report, plots of four acres each were laid off and fenced at the three centres—Sunderland Hall, Boon, and Naemoor,—as described in the previous reports. These were



grazed every summer with sheep. At Boon cattle as well as sheep were grazed on the plots in certain years. At each centre there were five plots, one of which was untreated, and the others were treated as described below. At each centre a preliminary season's grazing was undertaken before any of the plots were treated in order to measure the equality of the plots. The results of the grazing in this preliminary year are shown in the tables.

The treatment of the plots was as follows at all the centres:—

Plot A. Sheep were fed on the plot with a mixture of equal parts of decorticated and undecorticated cotton-cakes during the four years 1902 to 1905, and during these years the plot was manured by the residue of the cake contained in the excrements of the animals. During 1906 and 1907 the cake feeding was discontinued in order to measure how much improvement had been produced by the residual manurial matter from the cake already fed. As stated in the second report, No. 8 of the Summary, the feeding with cake gave the worst return for the expenditure of any of the plots, and very little return was obtained for the residual manure left after the cake feeding. In February 1908, 10 cwt. of slag was applied to this plot. The effect of this addition of slag was measured during the three seasons 1908 to 1910.

Plot B. Basic slag, 10 cwt. per acre, applied in February 1902.

Plot C. Basic slag, 10 cwt. per acre, and sulphate of potash, 210 lb. per acre, both applied in February 1902.

Plot D. Superphosphate, 9 cwt. per acre, and ground lime, 10 cwt. per acre, both applied in February 1902.

The slag applied to Plot A in 1908 was not of such high quality as that applied to Plots B and C in 1902. It amounted to a dressing of about 158 lb. of phosphoric acid per acre, whereas Plots B and C received a dressing equal to about 200 lb. phosphoric acid per acre.

Cake feeding gives a manurial dressing which is mainly nitrogenous, though it also supplies phosphate and potash. The analyses of the soils of these plots, which were given in the First Report, Table X., show that none of the soils were deficient in nitrogen, while Boon and Naemoor were particularly well supplied with this constituent. The poor quality of the pasture, therefore, was not due to want of nitrogen in the soil. The absence of any marked improvement from the residual effect of cake feeding is in these circumstances hardly surprising. It was suggested that perhaps some more return for

the cake feeding might be obtained if a supply of phosphate was given. Therefore Plot A, as stated above, was given a dressing of slag in 1908, and the results for the years 1908 to 1910, which are given below, show how far any further return was obtained.

In the first seven years of the experiment the sheep in each plot were weighed regularly at intervals of about a month. As stated in previous reports, there was in connection with each experiment a committee of practical men who supervised the experiment along with the experimenter. They assisted at the weighings of the sheep, and by their practical knowledge of the sheep-farming of the district gave valuable assistance in the stocking of the plots, so that the food produced on each plot was used to the best advantage.

After the seventh season the suggestion was made that, in order to save trouble, the regular monthly weighings might be dispensed with for the remaining years of the experiment, and the sheep weighed at the beginning, middle, and end of the season only. Though this saved a great deal of trouble, a very short trial was sufficient to show how greatly the value of the experiments would be reduced if the regular weighings were not continued. It was found at all the centres that it was not possible to judge whether the plots were properly stocked, and whether the food on the different plots was being fully and equally utilised, unless the regular weighing was continued. In 1909 and 1910 the regular weighing of the sheep was resumed.

In the earlier stages of the experiments (see the first and second reports) subplots were fenced off each year from the rest of the plots, and were not grazed with sheep but cut for hay. These subplots were not continued during the final stage of the experiments. The results they gave were only useful as proving that weight of crop as hay is a quite unreliable measure of the improvement effected by the manuring of pasture land.

Another practice which was carried out in the early years of the experiments, but was not continued, was that of selecting a representative sheep from each plot and sending it to the butcher, who gave a report on the carcase. For reasons stated in the second report, this test was found to be of very little value.

#### *Explanation of the Tables.*

The main results of the experiments are shown in the Tables I. to VII. These tables are drawn up on the same plan as those of the previous reports.

The results of each experiment occupy two tables. In the case of Boon, where cattle were fed as well as sheep, the

results occupy three tables. The first table referring to each experiment shows the manure per acre which each plot received, the cost of the manure, the live-weight increase obtained per acre on each plot during the preliminary year 1901, and the total live-weight increase obtained during the six years of the experiment 1902 to 1907 inclusive. Then follow three columns showing the live-weight increase per acre obtained in each of the last three seasons on each plot. In the case of Boon, cattle as well as sheep were grazed on the plots in 1906 and 1908. Columns showing the live-weight increase made by the cattle in these years are therefore given. The remaining columns of the tables show the increase per acre given by the different plots in excess of that given by the untreated Plot O, and show the value per acre of this increase, and whether a profit or a loss has been made, after allowing for the cost of the manure or of the cake, as the case may be.

The second table for each experiment—Nos. II., IV., and VII.—shows the live-weight gain per sheep per week and the carrying power per acre for each plot. These figures were calculated by the methods explained in previous reports. The tables show in each case the figures for the preliminary year 1901, the average for the six years 1902-1907, dealt with in previous reports; the figures for each of the years 1908, 1909, and 1910; the average for these three years, and the average for the whole nine years, 1902 to 1910.

The figures showing the carrying power per acre give an indication of the amount of food produced by each plot. The plots were stocked by practical men according to the amount of food which they appeared to be yielding. The head of stock carried was increased or diminished at the periodical weighings by adding or taking away a sheep, according as it was considered that the plot was under- or overstocked. It was here that the expert opinion of the committees of practical sheep-farmers who assisted with these experiments was most valuable. It was a very difficult thing to stock the plots so as to equally utilise the food produced by each. Such was the skill of those who assisted with these experiments that, except in one case to be mentioned later, it was never found necessary to make much alteration in the numbers of sheep allotted to each plot. On the other hand, the live-weight gain per sheep per week shows approximately how well the food was doing the sheep. If the plots were so stocked that each sheep had approximately an equal amount of food, the figures show on which plots the food did the sheep better; or, in other words, they show that it was better and more nutritious food on some plots than on others.

On Plot A, during the early years of the experiment, while

cake was being fed, the gain per sheep per week and the carrying power was, as might be expected, increased. This was not due to any improvement in the plot itself, but to the feeding value of the cake; for when cake feeding was discontinued, this plot fell back in live-weight gain per sheep till it was very similar to Plot O. The carrying power per acre also fell away so much as to show that little lasting improvement had been effected. The averages for this plot, which include the cake-feeding years, are not quite comparable with other averages.

In all the experiments the carrying power and the increases obtained varied considerably from year to year. This was largely due to the effect of season. The effects of bad weather—and especially of continuous wet weather on the one hand and of continuous drought on the other—were markedly shown at the periodical weighings of the sheep in the small increases made. On the other hand, good genial weather, with sufficient moisture to maintain the growth of grass, was followed by large increases in the weights of the sheep.

#### *Influence of Time of Year on Increase.*

As a rule, the grazing period began in May and ended late in September or in October. It was rather longer at Boon than at Sunderland Hall or Naemoor. It was only at Boon that it lasted longer than twenty weeks; at the other centres it was generally under twenty weeks.

Almost invariably the sheep made the great part of their increase during the first part of the season. Generally speaking, a month in the early part of the season was equal to two or three months during the latter part, so far as increase in weight was concerned. A detailed example of this was given in the second report. This difference was found every year, and at all centres. It was greater than even the effect of bad weather. Thus though the increases made in any month either in the early or later part of the season were reduced by bad weather, even a bad month in the early part of the season gave greater increases than a good month in the late part of the season. A bad month at the beginning of the season always gave increases in weight, though they were not such great increases as in a good month, but a bad month late in the season meant little or no increase at all, and in some cases resulted in a diminution in the average weight of the sheep.

The much greater increases made during the early part of the season appear to be due to the more nutritious nature of the grass at that time. The practical men who controlled the experiment were careful that the plots were never overstocked, and that there was always sufficient food on them for the

sheep. The smaller increases therefore in the later part of the season were not due to lack of food, but mainly to less nutritious food. It was quite common for the average live-weight increase of the sheep to be three to four pounds per week during the early weeks of the season, and to fall away till it was only half a pound per week or less at the end of the season.

### *Health of the Sheep.*

The health of the sheep was good at Sunderland Hall and Boon in all three years. In the notes given after the second table referring to each experiment, any deaths or serious illnesses among the sheep are noted. Whenever a sheep died, or had to be removed through illness, it was at once replaced from the reserve by a sheep of nearly equal weight. Very few such changes had to be made during the past three years.

At Naemoor the conditions were not so good. During both 1909 and 1910 the sheep suffered from maggot. In both years the attacks were so bad as to interfere seriously with the progress of the sheep during the time the attacks lasted. Although sheep on all the plots were attacked, some plots suffered more than others, and the results of this experiment are therefore rendered less reliable in both these years than they would otherwise be. July and August were the worst months. In both years many of the sheep lost in weight during these months, and few made increases of any consequence owing to these attacks.

### *Value of the Live-Weight Increase.*

In order to estimate the value of the improvement produced by the use of the manures a value has to be placed on the live-weight increase made by the sheep, and at Boon, where cattle were used, by the cattle. The same figures have been taken for the value of this increase as in previous reports. The value placed upon the live-weight increase in the case of sheep is 3d. per pound, and in the case of cattle 1½d. per pound. The reasons for adopting these figures were fully discussed in the previous reports.

The value which is put on this increase is of the greatest importance, for the whole profit or loss of the different plots depends upon it. It is also very difficult to arrive at a fair valuation. As a rule, the sheep were not sold at the end of the experimental feeding. They were not ready for the butcher. Even if they had been bought in for the experiment and sold again at the end of the season, the data so obtained would not necessarily have been quite reliable. Market prices vary not

merely from season to season, but from week to week, and the accident of a good or a bad market might have seriously affected the results. For a purpose of this kind we wish to know not merely what the accident of any particular market price will yield, but what is the average value of the live-weight increase yielded. Dr Wilson arrived at the result that for the early years of the experiment the average value actually realisable was about 3d. per pound in the case of sheep. He also stated his opinion, however, that this "is more than could be realised on an average over a longer period." The later years of the experiment have shown that this opinion was justified. In many cases 3d. per pound could not have been realised for the increase, for the market was a falling one, and sheep were selling much cheaper at the end of the season than at the beginning of it. Nevertheless, for the sake of uniformity this figure has been used in this report as in the preceding ones.

On the whole, it is probably as fair a figure for the average of years as can be taken. Dr Somerville, who in his earlier reports adopted a higher figure, namely 3½d. per pound, and therefore showed more profitable results on paper from the use of manures, has in his latest report, referred to above, adopted our figure. He brings forward further evidence<sup>1</sup> to show that 3d. per pound is the correct figure. He says: "If this figure be adopted it brings the butcher's estimate and the live-weight increase valuations at Cockle Park into very close agreement. Moreover, the rate of 3d. per pound receives strong support from the results at Sevington. There the sheep have always been bought specially for the experiments, and at the end of the season they have all been sold." He then takes the results for the best year at Sevington and shows that they work out to 3.19d. per pound, and concludes—"Even in a good year it is evident that the live-weight increase cannot be put at much more than 3d. per pound, and in a bad season it will work out at much less." This is exactly in agreement with the conclusions already arrived at in these reports.

All the results seem to show that on the average the increase is not worth so much as 3d. per pound. But it is well to adhere to this figure as giving us a result near the truth for the following reason, in addition to those already given. In these experiments the plots were grazed for only about five months out of the year. The grazing has some value for the rest of the year, though not a very high one. If the plots are improved by the manuring during the five months of summer grazing, they will also be improved to some

<sup>1</sup> "Influence on the Production of Mutton of Manures applied to Pasture," pp. 19 and 20, 'Journal of Board of Agriculture. Supplement,' vol. xvi., No. 10, January 1911.

extent for the remaining seven months also. Therefore in order to get a full measure of the improvement effected some value ought to be allowed for this. This and other questions bearing on the valuation have already been fully discussed in preceding reports, to which reference can be made for further information concerning them. The general conclusion is that while it is impossible to make a rigidly exact valuation on account of the complicated nature of the problem, we shall not be far wrong in taking 3d. per pound as the value of the live-weight increase of the sheep.

At Boon cattle were grazed on the plots for part of the season in 1906 and again in 1908. In both years they were young rough beasts, and Dr Gibb estimated that the value of the increase which they made was about 1½d. per pound. In taking it at this figure the value is certainly not overestimated.

The "cost of treatment" of the different plots is arrived at by taking the cost of the manure or cake used on the plot, including the cost of carriage to the place of experiment. This is really not the whole cost of treatment, for nothing is allowed for the cost of distribution. So also the cost of the cake and manure is borne at the beginning of the experiment, whereas the returns are only obtained over a considerable period of years. A charge for interest should, therefore, be added to the cost, and the profit only begins to be realised after the cost of treatment and interest are repaid. On the other hand, the improvement effected by the manure was by no means exhausted at the end of the period of experiment. As will be shown when the different experiments are referred to in detail, certain of the plots were yielding nearly as good a return for the manure in the ninth season after the application, as in the early part of the experiment. The whole of the figures for valuations, costs, and profits can be regarded only as approximations.

#### *Allowance for Inequality of the Plots.*

It has been already explained in the previous reports that the season 1901 was used for testing the equality of the plots, and the manures were not applied till February 1902. This was a useful precaution which has not been adopted in most other experiments of this kind. It is practically impossible to get a series of plots, each four acres in extent, all absolutely equal to one another in feeding value. When the experiments were arranged in 1901 it was the opinion of practical men who carefully examined the land, that there were differences in value between the plots in each experiment. This was tested during 1901 by stocking the plots with sheep and weighing the increases given by them. The differences thus found between

the plots agreed in general, though not in every case, with the opinion of practical men as to the comparative values of the different plots.

In all feeding experiments the individual peculiarities of the animals used cause a certain margin of error. When a number of sheep are fed together under the same conditions and on the same food, some will do better than others. In order to get approximately accurate results in such tests, a large number of animals must be taken so as to eliminate, in the average, individual peculiarities, and the results of the slight accidents which affect individuals. On four-acre plots it is not possible to feed more than from 6 to 12 sheep, therefore the individual and accidental differences are not very completely eliminated. If in any year, as is quite apt to happen, one plot gets one or more exceptionally good doers, while another gets one or more poor doers, that will create an error in the results. This is a difficulty inherent in the method of experiment. Where, therefore, the opinion of the practical experts who examined the plots agreed with the increase results as shown in the preliminary test in 1901, we can be reasonably certain that the result of this test is approximately correct. On the other hand, when they disagreed a considerable element of uncertainty is introduced.

In the tables the increases gained over the untreated Plot O are in every case shown in two forms: (*a*), without making any allowance for the differences obtained in 1901. In this case the increases obtained over Plot O for the nine years, 1902 to 1910, are added together, and the total increase for the nine years thus obtained. (*b*) Allowance is made for the inequality of the plots as shown in the preliminary tests in 1901. For instance, at Sunderland Hall, Plot O, the unmanured plot, gave in 1901 14 lb. more increase in live-weight of sheep than Plot C; therefore in each year 14 lb. was added on to the increase of Plot C to obtain the increase for this plot over Plot O, shown under (*b*). On the other hand, at Boon Plot O made the lowest increase of all in 1901. Therefore in each year corresponding deductions were made from the increases shown by the other plots over Plot O, in order to arrive at the increases shown under (*b*).

It is the increases obtained by method (*b*) which are used in calculating the value of the increase, and the net gain or loss from the treatment of the plots. Though, as already explained, there are uncertainties in the case of some of the plots where the results obtained in the preliminary year were not quite in accordance with the opinion formed by practical men as to the inequalities of the plots, this method seemed on the whole to be the one which would give the closest approximation to



the truth. Even if we reject the results of 1901 altogether, it will not seriously modify the main results obtained from the experiments. If we made our calculations without any allowance for inequality of the plots, the results would be considerably altered in details, but the main conclusions as to which treatment has shown gain and which has shown loss, would stand. In the remarks below upon the individual experiments, further details about this are given.

#### SUNDERLAND HALL.

The results of this experiment are shown in Tables I. and II. This experiment has been in every way a most interesting and satisfactory one. As Dr Wilson remarked in the first report, "no experiment of the kind could be conducted with less probable error." To carry out such experiments in a thorough manner needs much care and attention to detail, and involves no little trouble. During all the ten years of this experiment there was nothing wanting to ensure its accuracy and success which the care, skill, and judgment of Mr Scott Plummer and his committee could supply.

The plots were on a hillside in the order D, A, O, B, C, beginning from the top. In the opinion of Mr Plummer and the other sheep-farmers who examined the land at the start, the best land was at the top, Plot D; then followed Plots A and O, while Plots B and C were of poorer quality. This opinion was quite borne out by the preliminary test in 1901. The results shown, therefore, under (*b*), where the inequalities of the plots as shown in 1901 are allowed for, are probably approximately accurate.

The herbage on these plots at the start was thus described in the first report: "The prevailing grass was *agrostis*, but there was also some Yorkshire fog, cocksfoot, and dogstail, and small plants of white clover could be found over all the plots." This continued to be the character of the untreated Plot O till the end of the experiment.

Plot A has been a disappointing plot to practical men all through, both on this and the other experiments. The cake feeding increased the quantity of grass a little, but did not improve its quality or increase the clover. When cake feeding was stopped the plot fell back till it gave little more increase than Plot O. After three years' treatment the balance against this plot was 13s. 10d. per acre. It was hoped that the manurial residue of the cake might liquidate this adverse balance, but at the end of 1907 the balance against the plot was still 12s. 1d. Slag was then applied, and, as in the case of Plots B and C, an improvement in the character of the herbage soon

began to be seen. The clover began to spread quite markedly after 1908. Nevertheless this plot has not made such good progress in the three years since it received slag as was made by Plot B in the first three years after slag was applied to it. The balance against Plot A is now 14s. 7d. per acre, so that the cost of the slag has not been paid off in three years. In the case of Plot B, the cost of the slag was paid off in three years, and a small balance to the good was left. While inequalities in the seasons or in the sheep may account for part of this result, it is quite clear that feeding sheep with cake does little to improve land such as this, and practically no return is obtained for the residual manurial value of the cake used.

Plots B and C were originally the poorest plots. To B slag alone was applied, to C slag and sulphate of potash. Both these plots have done well. The herbage soon began to show an improved character. The clover spread, and the pasture became greener and fresher looking. The improvement was shown in the increased carrying power of the plots and in the increased live-weight gain per sheep per week. Whereas to start with these plots were below Plot O in carrying power, and much below it in live-weight gain per sheep per week, over the whole period of nine years since the manures were applied they have shown a much greater carrying power, and have also fed the sheep better, as shown by the increased live-weight gain per sheep per week (Table II.) Even during the last three years of the experiment there has been little falling off. The plots still showed a greener and more clovery pasture than Plot O, and, as shown in Table II., still carried a greater weight of sheep per acre and did them better. Though these plots towards the end showed signs of going back a little, the effect of the manures was by no means exhausted. The improvement was produced mainly by the slag; for Plot C, though it shows a little greater increase than Plot B, has not given quite enough increase as compared with B to pay for the cost of the sulphate of potash.

Both plots have paid well. As shown in Table I., B has left a profit of about 6s. 6d. per acre per annum after paying for the manure, while C has left a profit of 6s. per acre per annum. Even if no correction is made for the inequality of the plots, both these plots leave a considerable profit.

Plot D, which received superphosphate and ground lime, has been somewhat disappointing. Though it was the best plot at the start, it has never shown as much improvement as B and C and has never paid for the cost of the manures. This plot was always deceptive in appearance. Its look made one expect better results than it gave. It seemed to grow more grass than B and C, but was not so well eaten down, and the sheep did not

TABLE I.—SUNDERLAND HALL. Experiment conducted by C. H. SCOTT PLUMMER, Esq., at his Home Farm, Sunderland Hall, Salfordshire. *Pasture*—18 years old; *Elevation*—800 feet. Shallow light soil resting on yellow clay and rock. Plots of four acres grazed by Cheviot Wether Hogs. Experiment begun 1901.

## RESULTS PER ACRE.

Plots.	Live-weight increase in 1901 (testing equality of plots).	Treatment per acre.	Cost of treatment.	Live-weight increase of sheep in—					Live-weight increase in nine years in excess of Plot O.			Net gain (+) or loss (−) from (b), deducting cost of treatment.
									(a) No allow- ance.	(b) Allowing for inequality of plots, as shown in 1901.		
				1902-1907 inclusive.	1908.	1909.	1910.	Total, nine years.		Weight in lb.	Value at 3d. per lb.	
	lb.		s. d.	lb.	lb.	lb.	lb.	lb.	lb.		s. d.	s. d.
A	33	{ Sheep fed from 1902 to 1905 in- clusive with cake, 10 cwt. Basic slag applied February 1908 (=approximately 138 lb. phosphoric acid)	84 1	579½	59½	94	90	823	251	278	69 6	-14 7
B	22½	{ 10 cwt. basic slag applied Feb- ruary 1902 (=approximately 200 lb. phosphoric acid)	22 6	538½	67	81	84	770½	198½	320	80 0	+57 6
C	22	{ Same as Plot B. and 210 lb. sul- phate of potash (= approxi- mately 100 lb. potash)	35 9	567½	67	88½	82	805	233	359	89 9	+54 0
D	41½	{ 9 cwt. superphosphate (= ap- proximately 200 lb. phosphoric acid) and 10 cwt. ground lime	40 7	538½	52	79	86	755½	183½	134	33 6	-7 1
O	36	Untreated . . . . .	...	387½	51½	67	66	572	...	...	...	...

TABLE II.

Plot.	Live-weight gain per sheep per week during season.						Carrying power. Mean live-weight per acre in—						Plots.
	1901.	Average 1902-7.	1908.	1909.	1910.	Average 1908-10.	Average 1902-7.	1908.	1909.	1910.	Average 1908-10.	Average 1902-10.	
A	lb. 1-38	lb. 2-00	lb. 1-26	lb. 2-53	lb. 2-07	lb. 1-95	lb. 216	lb. 233	lb. 198	lb. 221	lb. 217	lb. 216	A
B	91	1-85	1-42	2-41	2-18	2-00	214	231	175	193	200	209	B
C	89	1-92	1-42	2-35	2-12	1-96	220	235	194	209	213	218	C
D	1-68	1-84	1-17	2-36	2-23	1-92	213	214	173	207	198	208	D
O	1-46	1-62	1-47	2-30	1-95	1-91	170	181	152	173	169	170	O

## NOTES.

On May 29, 1903, 10 sheep each were placed on Plots A, B, C, and D, and 8 on Plot O. On July 24 it appeared that Plots D and O were overstocked, so 1 sheep was removed from each. Grazing ceased on October 7 (18½ weeks).

On May 21, 1909, 9 sheep each were placed on Plots A and C, 8 each on Plots B and D, and 7 on Plot O. A sheep on Plot A died towards the end of July and was replaced from the reserve. Grazing ceased on September 18 (16½ weeks).

On May 16, 1910, 9 sheep were placed on Plot A, 8 each on Plots B, C, and D, and 7 on Plot O. On July 1 and on August 22 a sheep was removed from Plot D and replaced by one from the reserve. Grazing ceased on September 27 (19½ weeks).

appear to thrive so well on it as on the slagged plots. Even if no allowance is made for the inequality of the plots, it gives very little profit per acre, and the results are still considerably below those of Plots B and C.

### BOON.

The results of this experiment are summarised in Tables III., IV., and V. The pasture on these plots was very different from that at Sunderland Hall. The soil is naturally covered with a very thick coarse mat of herbage, composed chiefly of *agrostis*. The *agrostis* grows into rough thick tussocks, which are almost useless as food for sheep. The main difficulty is to get rid of this thick, vigorously-growing covering of bad grass in order to allow finer grass and clover to grow. Manures can only gradually reach the soil through the thick felt of old and partly-decayed *agrostis* and *agrostis* roots with which it is covered. The soil is very rich in humus matter and nitrogen, but needs phosphate and lime. In order to produce a radical improvement the thick mat of old herbage requires to be removed, and this can be done thoroughly only by breaking up this old pasture with the plough. On this account this experiment, though it was carried out in the most thorough manner and received the greatest care and attention from Dr Gibb and his committee, is not of so satisfactory a nature as that at Sunderland Hall.

As has been pointed out in previous reports, the preliminary experiment in 1901 did not give so reliable a result as at Sunderland Hall. This was largely due to the peculiar nature of the ground, which produces large quantities of grass of very low feeding value for sheep. Possibly if the gains were calculated without making any allowance for 1901, they would be quite as near the truth as when allowances are made in accordance with the results of 1901.

All the plots in this experiment showed very little improvement during the first two or three years after the manures were applied. This was probably on account of the thick mat of herbage through which the manures had to work before they could produce any effect. At the time of the first report all the plots showed a loss. This was converted into a gain at the time of the second report only in the case of Plot B, but as shown in Table III., Plots B, C, and D all show profits after nine years. These profits should probably be greater than shown in the table, for the allowances made in accordance with the results of 1901 reduce the increase shown by these plots as compared with Plot O. As stated above, it is doubtful if these corrections are necessary. As in the case of Sunderland Hall, slag alone, Plot B, shows by far the greatest profit. The notash

on Plot C has not paid its cost—indeed it has done practically no good at all in this experiment. Superphosphate and lime, Plot D, shows only a small profit. The relative positions of these plots are probably correct, and no difference would be made in them were no allowances made for inequalities of the plots in accordance with the results of 1901, though the profits in each case would then be considerably greater.

As in the case of Sunderland Hall, Plot A has never paid. Little or no return has been obtained for the manurial residue from the large amount of cake fed on this plot, and the slag applied to it in 1908 has barely repaid its cost in the three seasons which have passed since it was applied. The effect of the cake feeding was to cause the poor grasses to grow more vigorously, and the plot to become even rougher than in the unimproved state. After slag was applied in 1908 the quality of the pasture slowly improved, just as in the case of Plot B after the slag was applied to it in 1902. Plots B, C, and D, which received phosphatic manures, were all improved, both in carrying power and in live-weight increase per sheep per week (see Table IV.) by the treatment. The improvement was shown by the spreading of fresh green patches, and by the increase of white clover on these plots. The difficulty was to get rid of the coarse tussocky material, so as to give the fresh grass and clover a chance. The improved condition of all these plots continued quite to the end of the experiment. The tables show that in no case was the effect of the manure exhausted at the end of nine years. During the last three years of the experiment, Plot D, superphosphate and ground lime, which till then had given disappointing results, gave better results than either B or C. The appearance of the plot was quite in accordance with the results shown by the sheep. At the end of the experiment Dr Gibb considered it the best plot of the five. In this case the superphosphate and lime seemed even slower in effecting an improvement than the slag.

Cattle were fed on these plots from time to time in order to assist in tearing up and treading down the thick rough herbage which sheep would not touch. The results for cattle are shown in Table III. for the years 1906 and 1908. In these years the plots were stocked entirely with cattle during the first half of the season. The cattle feeding in 1906 was described in the second report. In 1908 six young cattle were placed on each plot. The results were very much as in 1906. The cattle made surprising progress on such poor pasture, and their live-weight increase was on the whole proportional to that made by sheep on the same plots. But the cattle made much more increase in live-weight than sheep. Roughly speaking, the cattle made in 9 weeks twice as much increase as



TABLE IV.

Plots.	Live-weight gain per sheep per week during season—							Carrying power. Mean live-weight per acre in—					Plots.		
	1901	Average 1902-7.	1908.*	1909.	1910.	Average 1908-10.	Average 1902-10.	1901.	Average 1902-7.	1908.*	1909.	1910.		Average 1908-10.	Average 1902-10.
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	A
A	1.18	1.49	.66	1.63	1.09	1.13	1.31	224	273	242	235	220	232	253	B
B	1.16	1.36	1.02	1.40	1.30	1.24	1.30	207	219	254	197	191	214	217	C
C	1.19	1.32	.81	1.49	1.22	1.17	1.24	181	215	249	191	182	207	211	D
D	1.26	1.32	1.29	1.41	1.49	1.37	1.34	180	217	245	219	219	227	222	E
O	1.16	1.16	.71	1.51	1.30	1.17	1.17	158	157	176	108	138	141	149	

\* With cattle.

## NOTES.

On May 18, 1908, 6 young cattle were placed on each plot. They remained on the plots till July 17 (9 weeks). On July 29 10 sheep were placed on Plots A, B, C, and D, and 7 sheep on Plot O. Grazing ceased on October 9 (10½ weeks).

On May 8, 1909, 12 sheep each were placed on Plots A and D, 10 each on Plots B and C, and 6 sheep on Plot O. No alterations were made during the season. Grazing ceased on October 16 (23 weeks).

On April 30, 1910, 12 sheep were placed on Plot A, 10 on Plot D, 9 each on Plots B and C, and 7 on Plot O. No alterations were made during the season. Grazing ceased on October 7 (22½ weeks).



sheep usually made on the same plots in the whole season of 20 to 25 weeks. The improvement of the different plots by the manuring is even more distinctly shown in the case of the cattle than in the case of sheep. Table V. shows the live-weight gain per beast per week made by the cattle in 1906 and 1908. It will be seen that on Plot D the cattle made in 1908 over 2 lb. per head per day during the whole nine weeks they were on the plot, and on Plot B the result was not far short of this, while Plots A and C were not far behind.

The primary object in putting the cattle on the plots was to improve the plots by getting rid of the roughness. The plots were therefore heavily stocked. Table V. shows the live-weight per acre carried in the case of cattle, and it will be seen that on the average it is over three times as great as the live-weight of sheep carried by these plots. The cattle served admirably

TABLE V.—CATTLE.

Plots.	Live-weight gain per head per week during season—			Carrying power—mean live-weight per acre in—		
	1906.	1908.	Average.	1906.	1908.	Average.
A	1b. 10 $\frac{2}{3}$	1b. 12 $\frac{2}{3}$	1b. 11 $\frac{1}{3}$	1b. 708	1b. 761 $\frac{3}{4}$	1b. 734 $\frac{1}{2}$
B	7	13 $\frac{2}{3}$	10 $\frac{1}{3}$	659	761 $\frac{1}{4}$	710 $\frac{1}{8}$
C	8 $\frac{1}{2}$	11 $\frac{1}{3}$	10 $\frac{1}{2}$	566 $\frac{1}{2}$	748 $\frac{1}{2}$	657 $\frac{1}{2}$
D	6 $\frac{1}{2}$	14 $\frac{2}{3}$	10 $\frac{1}{3}$	557 $\frac{2}{3}$	780 $\frac{1}{3}$	669
O	7	7 $\frac{1}{3}$	7 $\frac{2}{3}$	459 $\frac{1}{2}$	754 $\frac{1}{2}$	607

for the purpose for which they were placed on the plots. They trod down and ate down the roughness, and much improved the condition of the plots. But it was not expected that they would themselves make such great increases in live-weight as the tables show them to have made. It would undoubtedly have been to the advantage of the Boon experiment if cattle could have been used more freely on the plots. On this kind of land, where rough grass grows so freely, young rough cattle are able to consume and thrive on much that is of no use to sheep, and at the same time they improve the plots for sheep by their treading.

In addition to the cattle feeding recorded in the tables, a number of cattle were run over the plots for short periods on other occasions. For instance, in 1910 a number of cattle were

fed on each plot in turn for forty-eight hours at the beginning of the season. Dr Gibb records that they would have done more good to the plots if they had been kept on twice as long. As these cattle were pastured equally on all the plots, and were not weighed, no allowance is made for them in estimating the gains and losses.

The sheep remained, on the whole, healthy on these plots all through. In some years there was a little trouble on this rough land with their feet, but the trouble did not reach serious dimensions, and was not sufficient to seriously affect the results of the experiment.

#### NAEMOOR.

The results of this experiment are summarised in Tables VI. and VII. The pasture here was less productive than at either Sunderland Hall or Boon. The unimproved pasture was covered with a thin wiry herbage of agrostis, hard fescue, sheep's fescue, and other plants, and was a great contrast to the thick mat of turf at Boon. At Naemoor both the quantity and quality of the herbage needed improving; at Boon there was quantity enough, and it was only an improvement in quality which was needed. Naemoor was a most suitable situation for this experiment, and the results have been very consistent and interesting. The increases obtained in 1901 give on the whole a fairly reliable indication of the comparative values of the different plots, and therefore the increases over Plot O, given under B in Table VI., are probably more accurate than those given under A. While this experiment has been on the whole a most reliable and accurate one, the results of the past three years are hardly so trustworthy as those of the preceding years. The experiment has been somewhat unfortunate during these years. There was a change in management in 1908, and unfortunately the committee of practical sheep-farmers which at the start had taken charge of the experiment had been allowed to pass out of existence. Further, in both 1909 and 1910 the sheep on these plots were attacked with maggot. In these years, therefore, the gains are neither so great nor so reliable as they would otherwise have been. Though all the plots were attacked, the trouble was worse on some plots than on others. The live-weight increases in both these years are below the average, though neither season was otherwise a specially bad one. Though the results in these years are less reliable than in preceding years, and though the increases are not so great as they should have been, still as the results are in general agreement with those of previous years, and were also in general agreement with the appearance of the plots, they may be taken

TABLE VI.—NAEMOOR. EXPERIMENT conducted by J. J. MOURRAY, Esq. of Naemoor, Rumbling Bridge, Perthshire. *Pasture*—39 years old; *Elevation*—600 feet. Stony moorland soil on stiff subsoil. Plots of four acres grazed by Black-faced Sheep, two-year-old Wethers in 1901, Wether Hoggets in 1902, 1903, 1906, 1907, and Ewe Hoggets in 1904. Experiment begun 1901.

## RESULTS PER ACRE.

Plots.	Live-weight increase in 1901 (testing equality of Plots).	Treatment per acre.	Cost of treatment.	Live-weight increase of sheep in—					Live-weight increase in nine years in excess of Plot O.			Nett gain (+) or loss (-) from (b), deducting cost of treatment.	
				1903 to 1907 inclusive.				Total nine years.	(a) No allowance.	(b) Allowance for inequality of plots as shown in 1901.	Value at 3d. per lb.		
				1903 to 1907 inclusive.	1908.	1909.	1910.				lb.		s. d.
	lb.		s. d.	lb.	lb.	lb.	lb.	lb.	lb.	190½	s. d.	s. d.	
A	33	{ Sheep fed from 1902 to 1905 inclusive, with cake, 10 cwt. basic slag applied February 1908 (=approximately 138 lb. phosphoric acid)	64 4	335	53	40	44	472	172½	190½	47 8	- 16 8	
B	28	{ 10 cwt. basic slag applied February 1902 (=approximately 200 lb. phosphoric acid.)	22 6	341½	67	42	41	491½	192	255	63 9	+ 41 3	
C	29	{ Same as Plot B, and 210 lb. sulphate of potash (=approximately 100 lb. potash.)	35 9	391	80	52	46	569	270½	324½	81 2	+ 45 5	
D	25	{ 9 cwt. superphosphate (=approximately 200 lb. phosphoric acid), and 10 cwt. ground lime.	40 7	349	67	47	50	510	210½	300½	75 2	+ 34 7	
O	35	Untreated . . . . .	...	217½	31	20	31	289½	...	...	...	...	

TABLE VII.

Plots.	Live-weight gain per sheep per week during season—							Carrying-power. Mean live-weight per acre in—							Plot.
	1901.	Average 1902-7.	1908.	1909.	1910.	Average 1908-10.	Average 1902-10.	1901.	Average 1902-7.	1908.	1909.	1910.	Average 1908-10.	Average 1902-10.	
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
A	1.26	1.59	1.32	1.13	1.10	1.18	1.39	139	160	151	152	108	137	149	A
B	1.06	1.57	1.29	1.09	1.04	1.14	1.36	127	161	195	162	88	148	155	B
C	1.12	1.81	1.54	1.31	1.16	1.34	1.53	129	163	201	176	123	167	135	C
D	0.98	1.61	1.29	1.18	1.25	1.24	1.43	138	161	195	184	110	163	162	D
O	1.38	1.23	1.07	0.74	0.78	0.86	1.05	133	125	103	110	82	98	112	O

## NOTES.

On May 18, 1908, 7 sheep were placed on Plot A, 9 each on Plots B, C, and D, and 6 on Plot O. A sheep died on Plot O, and was not replaced. The sheep were weighed only at the beginning and end of the experiment. Grazing ceased on October 21 (23 weeks). On May 18, 1909, 8 sheep were placed on Plot A, 9 each on Plots B, C, and D, and 6 on Plot O. No alterations were made during this season. Grazing ceased on September 18 (17½ weeks). Grazing began on June 11, 1910. Owing to a misunderstanding the plots were badly mis-stocked at the start. On the 2nd August the sheep were rearranged, and 9 each placed on Plots A, B, C, and D, and 6 on Plot O. Grazing ceased on October 11 (17½ weeks).

as in the main correct, and they do not seriously vitiate the average results obtained from the whole nine years of the experiment.

The general results of this experiment are quite in agreement with those obtained at Sunderland Hall and Boon. Cake feeding has not paid, and practically nothing has been recovered from the manurial residue of the cake in the years after cake ceased to be fed on the plots. The application of slag to Plot A in 1908 improved this plot, but not more than the application of slag only to B in 1902 had previously improved that plot.

Plots B, C, and D, to which phosphatic manures were applied in 1902, have all left a profit. All of these plots were showing a loss at the end of 1904, when the first report was written. Though the improvement on these plots from the use of phosphatic manures early began to be shown, it took more than three years for the increases obtained to pay off the cost of the manures; but, as in the case of the other experiments, the improvements produced in the nature of the pasture have been maintained. In 1910, although, for the reason already stated, the results as to live-weight increase were not as good as they might have been, Plots B, C, and D had not fallen off much, if at all, in appearance, and, as compared with Plot O, the improvement in the quantity and quality of the herbage was apparent to even an inexperienced person.

In this experiment Plot C, which received both slag and potash, has paid best. This plot always looked a little better than Plot B, which received slag only, and though it took it a good many years to catch up on B in the profit made, it has justified its appearance in the long-run. This result would not be altered even if no allowance were made for the inequalities shown in 1901.

Plot B has also paid well, but Plot D, though it has given a rather greater increase than Plot B, has not paid quite so well, as the cost of the manures was considerably greater. These three plots—B, C, and D—always looked somewhat similar to one another, and quite different from the unimproved Plot O. They looked greener and fresher than Plot O, and contained more clover. On this poor thin land, however, the white clover never spread into broad green patches on these plots as it did on parts of the corresponding plots at Boon and Sunderland Hall.

#### *Conclusions.*

The results of these three experiments, which have been carried out with, on the whole, great care and accuracy for the long period of ten years, are well marked and consistent.

Though the three centres all differed from one another markedly in soil and situation, they all give results which are in the main in agreement. The results are, as pointed out in the second report, in certain respects dissimilar to those obtained at Cockle Park. This is to be expected, as the soils and conditions are also dissimilar.

The main result of all these experiments is to support the view that the chemical constituent most needed by such poor pastures is phosphate, and phosphate in a basic form combined with excess of lime. In this these experiments give a result in agreement with that of the Cockle Park experiments. But the extraordinary results obtained with slag at Cockle Park have not been obtained in any of these experiments. It is now generally recognised that phosphate is the manurial substance which has the greatest effect in improving the quality of poor pasture.

These experiments were conducted upon land which is typical of much of the poor hill pasture land of Scotland. Such land is, generally speaking, not deficient in nitrogen. In fact, it is very often, as at Boon and Naemoor, black and moorish, and only too well supplied with humus matter and nitrogen. These soils are frequently fairly well supplied with potash. Of chemical constituents they most require phosphate and lime. But they also require what cannot be given by the addition of any manures—good physical texture and condition. As was stated in the second report: "What the soils seemed to require more than manuring was improvement in their physical condition. In some cases they are not deep enough, and have no body in which to retain a sufficient supply of moisture. They are liable to be flooded and soured in wet weather and parched in dry weather."

Formerly the chief methods which were advocated for the improvement of poor hill pasture were draining and liming. These methods of improvement were fully set out in an article entitled "The Improvement of Hill Pasture without Breaking it Up," which was awarded a premium in the 'Transactions' for 1887, pp. 158-174. In this paper the use of phosphates is not advocated at all, but dressings up to five tons of lime per acre are recommended. The Cockle Park experiments and all the other experiments which have followed it have had this valuable result; they have shown that, above all things, phosphate is needed to improve poor pastures, and that lime by itself is not an economical substance to apply.

There is another important point on which the result of these experiments agrees with the result obtained at Cockle Park, and flatly contradicts what is a very generally held opinion among farmers. In every case the feeding of sheep

on Plot A with cake resulted in loss. The cake did not pay for itself in the increase it produced in the sheep, nor did it improve the pasture of the plot on which it was fed to any marked extent. All three experiments were quite consistent in giving this result. Also, as already explained, it is very much the result which might have been expected on land of the character of these plots. Nevertheless it is a very generally held opinion that there is no better or more economical method of improving pasture than by feeding cake on it to stock. It is probable that the results from cake feeding would be very different on land of a different character, but we are quite justified in concluding that on poor moorish lands, and on much other poor hill land, the feeding of cake to sheep on the land will not pay, and will not improve the pasture to any material extent.

In all these experiments the effect of the phosphatic manures given on Plots B, C, and D has been to improve the pasture very markedly. Except on Naemoor, the sulphate of potash given on Plot C has had little effect, and in all three experiments the superphosphate and lime given on Plot D has not been so profitable as the slag alone given on Plot B. Generally speaking, Plot B, slag alone, has paid best.

In all three experiments the effect of the phosphatic manures has been long continued. The Plots B, C, and D, generally speaking, improved gradually for a few years after the manures were applied. After the improvement had reached its maximum it continued little changed for a few years. Even at the end of nine years after the manures had been applied their effect was not exhausted; indeed there was little deterioration in the ninth season from what the plots had been when at their best. This has an important bearing on the unexhausted values of phosphatic manures applied to pasture land. It is evident that in these experiments, even nine years after its application, 200 lb. of phosphoric acid per acre, whether applied as basic slag or as superphosphate, had left a valuable residue in the land, and had effected an improvement which would have been worth something very appreciable to an incoming tenant.

In his recent report, already referred to, Dr Somerville ascribes the long-continued effect of slag in large measure to the accumulation of nitrogen which takes place in the soil owing to the greatly increased growth of clover where slag has been used. This explanation does not appear to find any support from these experiments. It has been shown that cake feeding, the manurial residue of which is mainly nitrogenous, has produced little improvement, and that this was to be expected in soils so rich in humus and nitrogen as those of these experi-

ments. We cannot therefore ascribe the long-continued effect of the slag on Plots B and C and of the superphosphate on Plot D to indirect increase of nitrogen in the soil through their use, nor is it necessary to do so. Phosphate, even when applied as superphosphate, is not lost in the drainage to any great extent, except from very sour land. Practically the only removal of phosphate is in the carcasses of the sheep. But the total increases of live-weight made by the sheep in the whole nine years of the experiment only amounted in the best cases to about 800 lb. per acre. This would not have removed more than a small fraction of the 200 lb. of phosphoric acid originally applied. After the nine years of sheep feeding it is practically certain that a very large part of the phosphoric acid of the manure still remained in the soil.

On very rough pastures, such as those of Boon, cattle should be fed as well as sheep. Not only do the cattle help to improve the pasture for sheep by treading down and tearing up the rough parts, but they themselves make far greater increases in live-weight per acre than do sheep. So far as the results of these experiments go, they show that on pasture such as that at Boon cattle can make surprising progress on grass which is practically worthless to sheep, and at the same time improve the pasture for sheep.

As slag has shown so good a result on poor pastures in these and other experiments, it is very desirable that the still cheaper phosphatic manure which we have in ground mineral phosphates—such as Algerian phosphate—should be tried in similar experiments. In Algerian and similar phosphates we have a slow-acting insoluble phosphate combined with a considerable excess of lime. These experiments show that the improvement from the use of slag is effected only slowly: the fact that Algerian phosphate is insoluble and slow-acting would probably, therefore, be little disadvantage, while it has the advantages over slag of cheapness per unit of phosphate and of greater concentration, so that the cost of carriage and handling are less.

### *Summary.*

1. The lime-phosphatic manures—(a) basic slag and (b) superphosphate applied along with lime—have in every case effected a marked and long-continued improvement on the poor pastures to which they were applied.
2. Basic slag applied alone has on the whole given the best return of all the manures.
3. Potash used along with basic slag has not generally paid its way.



4. Even in the case of basic slag, on an average three or four years elapsed before sufficient result was obtained to pay for the slag. On the other hand, the effect of the slag was not exhausted even after nine years.
5. Though a dressing of superphosphate and lime effected a considerable improvement, it did not pay so well as basic slag. The original cost of the dressing was greater, and on the average the return obtained was not greater than that from slag alone. The effect of the dressing was not exhausted in nine years.
6. The feeding of cake gave the worst return of all for the expenditure. In no case did it pay, either in the direct increase made by the sheep or in the improvement effected in the pasture. Generally speaking, very little result is recoverable on these soils from the manure residue of the cake used.
7. When the soil is covered with a very thick coarse sod of grass of poor quality, clover plants and the fine grasses have not room to develop, and the effect of the manure is shown only very slowly. On such pasture sheep alone are unable to eat down the grass properly, and better results are obtained when sheep and cattle are grazed on the same land. On such land cattle make far greater live-weight increase per acre than sheep.
8. In no case have these experiments shown the great and rapid improvement from the use of basic slag which was shown in the Cockle Park experiments.

The thanks of the Society and of the writer are due to the gentlemen who for such a long period conducted these experiments, and to the committees who assisted them. Without their help nothing could have been accomplished. Personally the writer is deeply indebted to the experimenters for their kind assistance and advice upon various points of difficulty.

## ANALYSES FOR MEMBERS DURING 1910.

By JAMES HENDRICK, B.Sc., F.I.C., Chemist to the Society.

THE number of samples submitted for analysis during 1910 was not so great as in 1909. The following table shows the number analysed during the last four years:—

	1910.	1909.	1908.	1907.
Fertilisers . . . .	60	97	68	100
Feeding-stuffs . . . .	30	26	28	31
Waters . . . . .	26	16	29	19
Miscellaneous . . . .	29	20	10	17
Total . . . . .	145	159	135	167

## FERTILISERS.

A few samples of peculiar and uncommon manures were analysed for members during the year. The analyses of these are given in the following table:—

	1	2	3	4
	Per cent.	Per cent.	Per cent.	Per cent.
Moisture . . . . .	14·24	8·40	10·51	9·74
*Organic matter . . . .	23·54	77·68	46·54	54·40
Phosphates (as tribasic phosphate of lime) . .	22·43	1·36	2·23	2·56
Potash . . . . .	2·38	0·63	1·20	1·07
Siliceous matter . . . .	20·27	7·50	29·54	23·10
*Containing nitrogen . .	2·50	7·13	2·26	2·68
Equal to ammonia . . .	3·06	8·66	2·74	3·26

No. 1 was a mixed manure of a low class. Although it contained a considerable percentage of phosphate this was entirely insoluble phosphate. The nitrogen was entirely derived from slow-acting materials like shoddy, hair, and feathers. This manure had the appearance of being largely made up of sweepings. It contained a larger amount of siliceous or sandy matter.

No. 2 was a dirty fibrous-looking mass with a peculiar, unpleasant, sour smell. Microscopical examinations showed that it was largely composed of the remains and fibres of some insect or spider. The fibres had the appearance of silk. This substance contains a large percentage of nitrogen in which its manurial value chiefly lies. The greater part of the nitrogen is contained in substances which will decompose slowly, and will therefore form a slow-acting nitrogenous manure of a similar value to wool.

Nos. 3 and 4 were sent as malt culms or kiln dust. They were guaranteed to contain 4·6 per cent of nitrogen, but, as the analyses show, only contained about half that amount. Both were very impure, and contained a large proportion of sandy matter. Had these manures been up to the guarantee they would have been well worth the price charged, namely, £2, 7s. 6d. per ton.

Some impure bone-meals of the kind recommended in pre-

vious years were again received during 1910. Such samples are generally low in phosphates, and contain much hair, sinew, and flesh, and sometimes some ground horn, hoof, and skin.

### *Feeding-Stuffs.*

*Soya Beans.*—A number of soya bean samples, meals, and cakes, were analysed. Much interest is still taken in this important new feeding-stuff, and in many quarters there is still a tendency to regard it with suspicion. In the following table the analyses of a few samples analysed for members are given :—

	1	2	3	4
	Per cent.	Per cent.	Per cent.	Per cent.
Moisture . . . . .	10·94	9·57	16·54	12·00
Oil . . . . .	17·79	17·82	6·58	8·45
*Albuminoids . . . . .	37·31	37·69	41·19	40·69
Soluble carbohydrates . . . . .	26·13	27·13	26·75	29·25
Fibre . . . . .	3·60	2·99	4·10	4·19
†Ash . . . . .	4·23	4·80	4·84	5·42
	100·00	100·00	100·00	100·00
*Containing nitrogen . . . . .	5·97	6·03	6·59	6·51
†Containing siliceous matter . . . . .	0·15	0·58	0·10	0·39

Samples 1 and 2 are the whole bean ground to meal, and were sold as soya bean meal. Nos. 3 and 4 are samples of the cake from which a considerable part of the natural oil of the bean has been expressed. No. 2 was sent in connection with a case in which some cows died and poison was suspected. A careful examination was made, but no evidence of any poison was found in this meal. It is quite a typical sample of soya bean meal. No. 3 is a little high in moisture, otherwise it and No. 4 are typical samples of soya bean cake. All these samples were very clean and free from sandy matter. A sample sent as a soya cake gave the following analysis :—

	Per cent.
Moisture . . . . .	15·13
Oil . . . . .	9·42
Albuminoids . . . . .	23·38
Soluble carbohydrates . . . . .	39·51
Fibre . . . . .	7·73
Ash . . . . .	4·83
	100·00

The analysis at once shows that it cannot be a sample of soya cake. Microscopical examination showed that it was a sample of mixed cake containing cotton-seed meal, wheat offals, locust bean, and other substances, as well as some soya bean meal.

*Linseed-Cake.*—Two samples of linseed cake, Nos. 1 and 2 in the table below, were sent by a member because cattle did not thrive when fed with No. 1, while when they were given No. 2 their progress was most satisfactory. No. 2 was considerably the cheaper cake:—

	1	2	3
	Per cent.	Per cent.	Per cent.
Moisture . . . . .	14·33	12·78	12·71
Oil . . . . .	13·16	10·54	10·14
Albuminoids . . . . .	26·19	28·38	25·38
Soluble carbohydrates . . . . .	34·06	34·85	36·86
Fibre . . . . .	6·37	7·26	8·38
Ash . . . . .	5·89	6·19	6·53
	<u>100·00</u>	<u>100·00</u>	<u>100·00</u>
*Containing nitrogen . . . . .	4·19	4·54	4·06
†Containing siliceous matter . . . . .	1·55	1·70	1·44

So far as the analyses show, No. 1 is a better cake than No. 2. It is exceptionally rich in oil, and, other things being equal, it is usual to charge a higher price for a cake which is higher in oil. Both cakes were sound and free from mould or any sign of decomposition. Microscopical examination showed that No. 1 was purer than No. 2, which contained a small amount of foreign substances. Linseed-cakes contain a small amount of a cyanogenetic glucoside—that is, a substance which yields the powerful poison hydrocyanic or prussic acid. Sample No. 1 was found to yield ·002 per cent and No. 2 ·001 per cent of prussic acid. These amounts are such as are quite common in linseed-cake, and are known to be harmless. Samples of linseed-cake yielding ten times as much hydrocyanic acid as was found in either of these have been fed heavily to cattle without any injury following. The analyses of these samples therefore throw no light on the difference found between them when fed to stock. Judged by ordinary analytical tests, No. 1 was the better sample and was worth a higher price.

Samples are frequently sent to me which have been guaranteed “95 per cent pure” linseed-cake. No attention should be paid to such a guarantee. All that the purchaser needs to know is whether the substance is sold as linseed-cake. According to the Fertilisers and Feeding-Subsances Act, if an article is sold as a food for cattle, an invoice must be given stating the name of the article, and whether it is composed of one substance or seed, or of more than one substance or seed. Such an invoice is a warranty to the purchaser of what is stated therein. Therefore, if an article is described in the invoice as linseed-cake, and there is no statement that it is made from more than one substance or seed, that is a warranty that it is pure linseed-cake in the

ordinary commercial acceptance of the term, and any further description is superfluous.

The sample No. 3 in the above table was sold as a 95 per cent pure linseed-cake. It was a very impure sample, containing a considerable admixture of foreign seeds. The analysis is not a normal one for pure linseed-cake, as it is rather low in albuminoids and high in carbohydrates. Such samples have generally been made from impure, dirty linseeds, which have not been screened to remove the weed-seeds and other impurities.

*Rape-Cake.*—Two samples of rape-cake gave the following analyses:—

	Per cent.	Per cent.
Moisture . . . .	9.94	8.08
Oil . . . .	8.72	9.43
*Albuminoids	34.19	32.06
Soluble carbohydrates	29.16	30.36
Fibre . . . .	8.71	9.17
†Ash . . . .	9.28	10.90
	100.00	100.00
*Containing nitrogen .	5.47	5.13
†Containing siliceous matter	2.82	4.11

Both of these samples, but especially the second one, contained too much sandy matter. Otherwise they were quite good samples of this type of cake.

*Oatmeal Siftings.*—Two samples described as oatmeal siftings were received from the same member. They were sold with a guarantee of 9.8 per cent of oil and 14 per cent of albuminoids. They gave the following analyses:—

	Per cent.	Per cent.
Moisture . . . .	9.24	10.16
Oil . . . .	1.81	2.97
*Albuminoids	4.75	7.19
Soluble carbohydrates	52.65	49.60
Fibre . . . .	26.93	25.66
†Ash . . . .	4.62	4.42
	100.00	100.00
*Containing nitrogen	0.76	1.15
†Containing siliceous matter	3.29	2.96

The first sample consisted almost entirely of oat-husks, and was not worth much more than a sample of straw. The second was a little better, but was still very far from the guarantee given. As the result of these analyses the purchaser was able to exact privately very satisfactory terms from the seller.

*Poisonous Cummins.*—A sample of cummins was analysed from a consignment which a member stated had poisoned some of his cows. It turned out to be a vile sample. It was very dirty and partially decomposed, and was quite unfit for use as food for stock. It contained 12·2 per cent of siliceous matter, which consisted mainly of gritty sand. It was swarming with mites and other organisms.

*Condiment.*—A sample of a condiment gave the following analyses:—

	Per cent.
Moisture . . . . .	5·73
Oil . . . . .	3·89
Albuminoids . . . . .	4·75
Soluble carbohydrates . . . . .	30·47
Fibre . . . . .	3·26
Nitre . . . . .	44·89
Ash . . . . .	7·01
	<hr/>
	100·00

As shown by the analysis, this material consisted largely of nitre. The remainder was a mixture of spice-seeds such as fenugreek and caraway, and of other vegetable substances, such as liquorice and turmeric. The turmeric had been added as a dye. The condiment was of a bright yellow colour, owing to the presence of this vegetable dye. In my opinion feeders are very ill-advised in using mixtures such as this for their stock.

*Soils.*—In all, seven soils were analysed for members during the year. Not one of these was well supplied with lime, and five of the seven were particularly deficient in this constituent. Four of these were distinctly acid in reaction. All the five soils found very deficient in lime were sent to me because the results obtained from them were very unsatisfactory. Some of the soils were very deficient in other constituents, such as phosphate, as well as in lime, but, generally speaking, the deficiency in lime was sufficient to account for the poor crop returns complained of. It is very common to find Scotch soils seriously deficient in lime. Most of our soils are not well supplied naturally with this constituent, and the old and well founded agricultural practice of liming has been largely departed from during the past forty years. Consequently it is very common to find soils in Scotland more wanting in lime than in any other constituent of primary importance to crops. To a large extent other manures are wasted when the soil is seriously deficient in lime.

## MILK RECORDS.

## EIGHTH YEAR—RECORD OF 9514 COWS.

By CHARLES DOUGLAS of Auchlochan, Lesmahagow.

THE name of the Committee in charge of these Milk Records has now been altered from "Ayrshire Cattle Milk Record Committee" to "Scottish Milk Record Committee," since it is recognised that all milk-recording in Scotland should be conducted on a common system and administered by a single body. The constitution of the Committee and the scope of its work remain unaltered. Any breeds which may at any time be made the subject of milk records will, under the present constitution, have their interests served by the delegates who continue to be sent to the Committee by each local Society.

The Committee in 1910 consisted of the following members :—

Name and Address.	Representative of
Mr Alexander Cross of Knockdon, 19 Hope Street, Glasgow	Highland and Agricultural Society.
Mr Charles Douglas of Auchlochan, Lesmahagow	
Mr James Howie, Hillhouse, Kilmarnock	Ayrshire Cattle Herd Book Society.
Mr Matthew Hunter, Adamhill, Craigie, by Kilmarnock	
Mr Robert Lees, Lagg, Ayr	
Mr T. C. Lindsay, Aitkenbrae, Monkton	
Mr A. W. Montgomerie, Lessnessock, Ochiltree	
Mr A. S. Black, Bogany, Rothesay	Bute Milk Record Society.
Mr W. T. R. Houldsworth, Kirkbride, Maybole	Carrick Milk Record Society.
Mr Thomas Howie, Fairfield Mains, Monkton	Central Ayrshire Milk Record Society.
Mr Alex. Arthur, Benston, New Cumnock.	Cumnock Milk Record Society.
Mr W. H. Ralston, Estate Office, Dunragit	Dunragit Milk Record Society.
Mr James Dunlop, Hall House, Fenwick	Fenwick Milk Record Society.
Mr John Smith, Wyllieland, Fenwick	
Mr Robert Wilson, Westwood, Dunlop	John Speir Milk Record Society.
Mr John M'Caig, Challoch, Leswalt	Kirkcolumb and Leswalt Milk Record Society.

Name and Address.	Representative of
Mr Gavin Hamilton, Banker, Lesmahagow	{ Lesmahagow Milk Record Society. Lower Wigtownshire Milk Record Society. Stewartry Milk Record Societies.
Mr William Christison, Barglass, Kirkinner	
Mr H. W. B. Crawford, Chapmanton, Castle-Douglas	
Sir Hugh Shaw-Stewart, Bart. of Ardgowan, Greenock	{ Co-opted.
Mr Thomas Clement, Netherton, Newton Mearns	
Mr John Drysdale, 5 St Andrew Square, Edinburgh	

*Chairman*—Sir Hugh Shaw Stewart, Bart.

*Secretary and Treasurer*—Mr John Howie, 58 Alloway Street, Ayr.

As the result of consideration by the Committee, the present report is in some respects different from its predecessors.

It is recognised that much of the detail which may have served an important purpose in the early stages of the milk record movement need not now form part of an annual report, more especially as the detailed figures in which actual milk records are given are deprived of much of their scientific value by their anonymous character, which prevents their being made the basis of inferences as to the effect of heredity and other factors on the milk-yield.

### *Proposed definition of Yields.*

The reports of actual yields have an important bearing both on the general position of the dairying industry and on the value of the practice of milk-recording as a guide to breed improvement. It has therefore been thought desirable to introduce an exact definition of the yields which are recorded. Highly misleading conclusions might be, and sometimes are, drawn from reports of yields taken in abnormal circumstances which are not clearly explained. It is not possible to eliminate all such sources of error; and for practical purposes those who propose to rely on individual milk records as guides in the selection of breeding animals would do well to inquire closely into all the relevant circumstances—such as the dates of calving, not only before and after the recorded lactation, but also before the preceding lactation, and the general feeding and management of the animal before and during the lactation.



But one source of error can, it is hoped, be eliminated from the report of this Committee—that, namely, which results from prolongation of the period between the calvings immediately preceding and following the recorded lactation. Prolongation of this period produces so variable and in many respects so incalculable an effect on the yield of milk, that it is difficult to devise any accurate method of discounting its influence.

After much deliberation, the Committee have decided that the best method of dealing with this admittedly difficult problem is to include in the recorded yield only the milk which has been given during the twelve months immediately preceding the date of the calving which follows the lactation under report.

It is recognised that this proceeding does less than justice to the yields of some animals whose lactations have been slightly prolonged, owing perhaps to some accidental cause; and it would be open to serious criticism were it to be made the basis of a public statement as to individual animals. The anonymous character of the report protects it against this particular criticism of the method; and it has been thought that the plan proposed is open to less objection and better fitted to make the report valuable than any other that has been suggested.

It is, above all things, essential that the report should, so far as possible, be in every respect a reliable statement of the facts with which it deals. It should not contain sources of error only to be discovered by close analysis, but should, on the whole, lead even unskilled readers to correct conclusions.

The changes that are now proposed are believed to be conducive to this result.

It has not been found practicable to give effect to the proposed alteration in the present report, preliminary data not having been collected for this purpose in 1909; but, while the complete application of this method is postponed, its purpose is in some degree served by the exclusion of the more abnormal lactations from the present report, which takes no notice of milking periods lasting more than 52 weeks.

While some striking records are thus omitted, it is believed that this loss is more than compensated by the greater reliability obtained in the general result, regarded as a statement of the milk yielded by cows calving annually and thus continuing to be breeding, as well as milking, animals.

It ought not, however, to be forgotten that the elimination of abnormally long lactations tends to reduce the recorded number of deep-milking animals in proportion to that of bad milkers, since it is to the former and not to the latter class that the long lactations invariably belong.

*Lactations recorded.*

It should be added that, in this report, the lactations dealt with are those actually or practically terminating in 1910. Any other basis of selection involving, as it must, the inclusion of small parts of lactations begun late in the year, deprives the figures of all value.

This will be specially recognised by those who know that the differences between lactations depend much more on the later than on the earlier period of their courses, and that the most vital part of a record is that which deals with the critical last months of the milking period.

The yields reported, therefore, are those obtained in single lactations terminating or approaching termination in 1910, and lasting not longer than 52 weeks.

*Classification.*

An attempt has been made to introduce classification of these yields on a definite basis. It has been thought desirable to give effect, in recording, to some common standard which should take account both of the quantity and the quality of the milk given, since by no other means is it possible to compare with each other milk-yields of varying quality. Hitherto the common standard has been that of milk reckoned as containing 3 per cent of butter-fat—other qualities being reduced in calculation to this basis and stated in terms of 3 per cent milk. It has now been judged advisable to abandon this particular standard, since its use is apt to introduce confusion in statement between the milk actually given and the 3 per cent equivalent. Instead of this 3 per cent standard, a 1 per cent standard is now introduced as being fitted to serve the same purpose without any risk of confusion. The new standard is at once less open to misconception than the old and also simpler in its application. The comparative value of any yield of milk is now obtained by merely multiplying the actual amount of milk yielded by the percentage of butter-fat which it is found to contain.

On this basis, it has been sought, in the present report, to introduce a certain degree of classification into the statement of yields which it contains. Experience may no doubt extend and modify this plan; but for the present it has been thought sufficient to classify on the one hand those yields which may, on the whole, be regarded as good, and on the other hand, those which must unhesitatingly be described as bad.

The method adopted has been to classify as good the yields of cows giving not less than 2500 gallons and of heifers giving

not less than 2000 gallons, of milk calculated as containing 1 per cent of butter-fat, and to classify as bad the yields of cows and heifers amounting to less than two-thirds of these amounts (1660 and 1330 gallons respectively).

If  $3\frac{1}{2}$  per cent be regarded as a normal percentage of butter-fat, such figures correspond, in the better class, to a yield of over 714 gallons from cows and over 570 gallons from heifers; and in the bad class to yields under 474 gallons from cows, and under 380 gallons from heifers. It will hardly be denied that the animals thus condemned as bad are really worthless as dairy cattle. On the other hand, if the experience of some districts would lead to the criticism that the standard of good yields might well be fixed at a higher point, it may fairly be urged in reply that, in the varying conditions of different districts, a higher standard of qualification would have excluded a large proportion of animals which are, in point of fact, a credit to any milking breed of cattle. The best answer to criticism is to be found in the actual working of these standards of classification.

When it is recalled how widely various are the local conditions in which they fall to be applied, it will be recognised on a survey of the classified results that the standards could not be greatly altered at present in any direction without ceasing to be applicable in one or other set of circumstances; and it will be admitted that the general function of a report on milk-yields is not so much to emphasise a few exceptional facts as to indicate the proportion in which good and bad cows are to be found throughout the country.

#### *Actual Yields stated.*

It should be pointed out that while the unitary basis is employed, and necessarily employed, as an aid to classification, it finds no place in the statement of actual milk-yields given by the Milk Records Committee in the appendix to its report. In every case the yield is there given, as it has been recorded, in respect of the quantity and quality of actual milk.

#### *Difficulty of Comparison.*

Since the report on the various local societies wears necessarily some appearance of being a comparison between them, it is desirable to say that not only is this not intended, but any such interpretation of the report must lead the reader to false conclusions.

Conditions and methods vary in different districts so greatly as to render comparison between districts wholly futile, since the variations may easily make a difference of 20 per cent in

the milk-yields attained. This applies not only to climate and soil—especially as affecting pastures—but also to the methods and objects of dairy management. It applies with special effect to the season of year at which the particular industry of each district leads the milking period to be begun—late spring and summer lactations, for example, being notably less productive than those which begin in autumn and winter.

The summarised results of the records taken in various districts ought not to be read as an indication of the absolute or relative number of good cows, since among the cows of which no records are given are all those—a large proportion in some districts—whose lactations began too near the end of 1910 to be reckoned at all.

The only clue to any general result which these summarised reports give is to be found in the proportion which good cows and bad cows bear to one another; and even this must be interpreted in the light of the fact already noted, that the list of good cows is depleted of all the yields lasting more than 52 weeks, while the list of bad cows is swollen by the presence in it of all those yields which were adversely affected by accident, abortion, disease, and the other causes that contribute to the wastage of dairy herds.

It is all the more satisfactory to find that, even when augmented in this way, the list of these bad cows and heifers yielded by the records of 1910 shows only 607, while at the other end of the scale 2347 animals of the higher quality are found.

These, and the considerable number of similar cows excluded from the report on account of the abnormal length of their 1910 lactations, offer an admirable opportunity for the improvement of dairy cattle by careful breeding.

#### *Administration.*

The Committee has continued in 1910 to administer its work through the local Milk Record Societies. It has aided in their formation and maintenance by means of the grants of £200 received from the Highland and Agricultural Society, and of £40 received from the Ayrshire Herd-Book Society. These grants have been used in the same manner as in previous years, to stimulate the growth of milk record societies and to carry on the work of checking and verifying their records and publishing the results of their operations.

An additional society has been formed in the Stewartry; and a new society, the "John Speir," has been formed with a membership principally in Ayrshire.

The following is a list of the Milk Record Societies in 1910 :—

Name.	Secretary.
Bute . . . . .	Mr A. S. Black, Bogany, Rothesay.
Carrick . . . . .	Mr John Stevenson, jun., Balig, Ballantrae.
Central Ayrshire . . . . .	Mr James Howie, Hillhouse, Kilmarnock.
Cumnock District . . . . .	Mr A. W. Montgomerie, Lessnessock, Ochiltree.
Dunragit and District . . . . .	Mr W. H. Ralston, Estate Office, Dunragit.
Fenwick . . . . .	{ Mr James Dunlop, Hallhouse, Fenwick; and Mr John Smith, Wyllieland, Fenwick.
John Speir . . . . .	Mr Robert Wilson, Westwood, Dunlop.
Leswalt and Kirkcolm . . . . .	Mr John M'Craig, Challock, Leswalt.
Lesmahagow . . . . .	{ Mr Gavin Hamilton, British Linen Bank, Lesmahagow.
Lower Wigtownshire . . . . .	Mr William Christison, Barglass, Kirkcinner.
Stewartry, Nos. 1, 2, and 3. . . . .	{ Mr Patrick Gifford, Solicitor, Castle-Douglas.

The following table shows the membership of the societies, cows tested under them, frequency of testing, and duration of the testing period :—

Name of the Society.	No. of members.	Period over which testing extended in weeks.	No. of cows tested.	Interval between tests, in days.
Bute . . . . .	8	44	207	14
Carrick . . . . .	18	52	819	21
Central Ayrshire . . . . .	18	51·8	696	21
Cumnock District . . . . .	20	45	659	21
Dunragit and District . . . . .	13	37	832	21
Fenwick . . . . .	25	51·4	951	28
John Speir . . . . .	23	49	771	28
Leswalt and Kirkcolm . . . . .	16	38	854	21
Lesmahagow . . . . .	17	52	475	28
Lower Wigtownshire . . . . .	17	37	881	21
Stewartry, No. 1 . . . . .	15	44·5	760	28
Stewartry, No. 2 . . . . .	12	44	787	28
Stewartry, No. 3 . . . . .	15	44·5	822	28
	217		9514	

*Bute Milk Record Society.*

The Bute society, in its second year, shows a slight decrease in membership. This not infrequently happens in the case of

societies which afterwards recover their lost ground. The membership in 1910 was 8; and 207 cows and heifers were under test.

Testing began on 21st February and ended on 30th December, having been carried on for 44 weeks, at intervals of 14 days. The society has done well to extend its testing period; and the improved result should react favourably on its membership. An even further extension is probably desirable in the circumstances of this society, as a considerable proportion of the cows are still tested for less than a full lactation period.

Of the 207 cows and heifers tested, 50 cows and 3 heifers were in the class which has been rated as good, while 10 cows and 3 heifers are classed as bad.

#### *Carrick Milk Record Society.*

This society maintains its position with an increase from 17 to 18 in its membership, and from 792 to 819 in the number of cows tested by its 17 members. Testing began on 2nd January, and continued till 31st December, having been carried on for 52 weeks at intervals of 21 days.

Direct sale of milk is the chief object of dairying in this district, and cows calve at various periods of the year. Some cheese is made in summer.

Of the 819 cows and heifers under test, 130 cows and 51 heifers attain the standard of good milkers, while 50 cows and 4 heifers are classed as bad.

#### *Central Ayrshire Milk Record Society.*

This society maintains its membership, but tests a slightly reduced number of cows—696 as against 720 in 1909. Its composition varies little; and it tests, as formerly, for a period of practically 52 weeks, with a 21 day interval. Milk is sold direct from most of the farms, and little cheese is made. Cows, therefore, calve at various periods throughout the year.

Of the 696 cows and heifers tested under this society, 158 cows and 37 heifers rank as good, while 49 cows and 1 heifer are classed as bad.

#### *Cumnock Milk Record Society.*

This society has 20 members as against 18 last year, and has 659 cows under test as against 609 last year. The tests were taken at intervals of 21 days, over a period of 42 weeks from 14th February to 26th December. The greatest extension of

the testing period promotes the efficiency of the society. Cows calve principally in the early part of the year.

Of the 659 cows and heifers under test, 165 cows and 68 heifers are classed as good, and 22 cows and 3 heifers as bad.

*Dunragit Milk Record Society.*

This society has 13 members as against 11 last year, and 832 cows under test as against 792 last year. The tests were taken at intervals of 21 days, over a period of 37 weeks from 15th February to November 2nd. This society, like some others, is finding it advantageous to extend its testing period so as to obtain complete records of a larger proportion of the cows. This process might well be carried further. Cheese-making is largely carried on, and most of the cows calve in February and March.

Of the 832 cows and heifers under test, 48 cows and 33 heifers are classed as good, and 87 cows and 5 heifers as bad.

*Fenwick Milk Record Society.*

This pioneer society maintains its position with 25 members as against 26 last year, and 951 cows under test as against 966 last year. The tests were taken at intervals of 28 days, for a period of 51·4 weeks. While most of the cows calve in spring, a considerable number also calve in autumn and winter, large quantities of milk being produced for direct sale.

Of the 951 cows and heifers under test, 359 cows and 86 heifers are classed as good, and 35 cows and 11 heifers as bad.

A considerable number of large yields are excluded on account of their excessive periods of lactation.

*John Speir Milk Record Society.*

This new society, which has its headquarters in Dunlop, has a somewhat scattered membership, principally in northern Ayrshire. It is desirable that societies should generally be formed in more restricted areas; and it is to be hoped that increase of this society's membership may lead to subdivision of its district.

The tests were taken at intervals of 28 days, during a period of 49 weeks from 20th January to 31st December. The society has 23 members, and 771 cows under test, a considerable proportion of the herds being small. The conditions, speaking generally, are somewhat similar to those of Fenwick.

Of the 771 cows and heifers under test, 148 cows and 34 heifers are classed as good, and 68 cows and 14 heifers as bad.

*Kirkcolm and Leswalt Milk Record Society.*

This society continues to maintain its membership of 16, and has this year 854 cows under test as against 815 in the previous year. The tests were taken at intervals of 21 days, during a period of 38 weeks from 6th February to 29th October.

Of the 854 cows and heifers under test, 93 cows and 3 heifers are classed as good, and 74 cows as bad.

In only one farm in this society's records are any heifers indicated as being tested. While the proportion of cows classed as bad is not disproportionately great, that of cows classed as good is somewhat disappointing. But this is in some degree explained by the fact that the period of the test is not long enough to do justice to a number of the best yields.

*Lesmahagow Milk Record Society.*

This society maintains its improved position, with 17 members as against 18 last year, and 475 cows as against 512 last year. The tests were taken at intervals of 28 days (two of the herds being tested at intervals of 14 days) during the whole year. Milk is produced chiefly for direct sale, and cows calve at various periods throughout the year.

Of the 475 cows and heifers under test, 106 cows and 34 heifers are classed as good, and 18 cows and 5 heifers as bad.

In two new herds records were only begun in June, so that no real data are available from them.

*The Stewartry Milk Record Societies.*

Three societies now operate in the Stewartry, instead of the two which existed last year; and considerable readjustment of the membership has taken place. The net result is that the membership has been increased from 31 to 42, while the number of cows under test has risen from 1723 to 2369—a notable growth of milk-recording in this district.

In Scheme No. 1 Society there are 15 members, with 760 cows under test, the average number in each herd being over 50. The tests were taken at intervals of 28 days, during a period of 44½ weeks from 8th February to 27th December. The cows calve principally in February and March.

Of the 760 cows and heifers under test, 149 cows and 82 heifers are classed as good, and 21 cows and 3 heifers as bad.

In Scheme No. 2 Society there are 12 members, with 787



cows under test, the herds averaging over 65. The tests were taken at intervals of 28 days, during a period of 44 weeks from 23rd February to 26th December. Cows calve chiefly in February and March.

Of the 787 cows and heifers under review, 125 cows and 72 heifers are classed as good, and 58 cows and 11 heifers as bad.

In Scheme No. 3 Society there are 15 members, with 822 cows under test. The tests were taken at intervals of 28 days, during a period of  $44\frac{1}{2}$  weeks from 18th February to 26th December. Most of the cows calve in February and March.

Of the 822 cows and heifers under test, 158 cows and 77 heifers are classed as good, and 22 cows and 3 heifers as bad.

*Lower District of Wigtownshire Milk Record Society.*

One society, with a membership of 17, now serves this district instead of the two which were formerly in operation, the number of cows under test having fallen from 1462 to 881. Tests were taken at intervals of 21 days, during a period of 37 weeks from 8th March to 24th November. Most of the cows calve in February, March, and April.

Of the 881 cows and heifers under test, 152 cows and 48 heifers are classed as good, and 27 cows and 4 heifers as bad.

It is satisfactory to be able to state that everything points to increased activity in milk-recording. Confidence in this simple but far-reaching application of scientific method is growing among farmers; and its practical advantages attract an increasing amount of attention.

This will no doubt be stimulated among breeders of pedigree Ayrshire cattle by the fact that the American Herd-Book Society, whose sanction is essential to the introduction of breeding stock to the United States, proposes to levy an almost prohibitive entry fee on all imported bulls whose dams and grandams have not an authenticated record showing a milk-yield of 800 gallons.

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## THE CEREAL AND OTHER CROPS OF SCOTLAND FOR 1910, AND THE WEATHER OF SCOTLAND IN 1910.

### THE CROPS.

THE following comparison of the cereal and other crops of 1910 with those of the previous year has been prepared by the Secretary of the Society from answers to queries sent to leading agriculturists in different parts of the country.

The queries issued by the Secretary were in the following terms:—

1. What was the quantity, per imperial acre, and quality of grain and straw, as compared with last year, of the following crops? The quantity of each crop to be stated in bushels. What quantity of seed is generally sown per acre?—(1) Wheat, (2) Barley, (3) Oats.
2. Did the harvest begin at the usual time, or did it begin before or after the usual time? and if so, how long?
3. What was the quantity, per imperial acre, and quality of the hay crop, as compared with last year, both as regards ryegrass and clover respectively? The quantity to be stated in tons and cwts.
4. Was the meadow-hay crop more or less productive than last year?
5. What was the yield of the potato crop, per imperial acre, as compared with last year? The quantity to be stated in tons and cwts. Was there any disease? and if so, to what extent, and when did it commence? Were any new varieties planted, and with what result?
6. What was the weight of the turnip crop, per imperial acre, and the quality, as compared with last year? The weight of the turnip crop to be stated in tons and cwts. How did the crop braird? Was more than one sowing required? and why?
7. Were the crops injured by insects? State the kinds of insects. Was the damage greater or less than usual?
8. Were the crops injured by weeds? State the kinds of weeds. Was the damage greater or less than usual?
9. Were the pastures during the season of average growth and quality with last year?
10. How did stock thrive on them?
11. Have cattle and sheep been free from disease?
12. What was the quality of the clip of wool, and was it over or under the average?

From the answers received, the following notes and statistics have been compiled:—

**EDINBURGSHIRE.** *Wheat*—44 bushels; straw about the same as last year;  $3\frac{1}{2}$  bushels sown. *Barley*—48 bushels; straw about the same as last year; 3 bushels seed sown. *Oats*—48 to 52 bushels; straw lighter than last year and selling well. *Harvest* began about the end of August and finished end of September; got fine weather. *Hay*—About 2 tons 10 cwt., or same as last year; well got; second crop well got. *Meadow-hay*—Very little grown; scarcely so well got as the ryegrass and clover hay. *Potatoes*—A good crop; some disease in the early varieties; prices about the same as last year. *Turnips*—Very good crop; 25 tons. *Mangold* very good; 25 tons and finely stored. No damage by insects or by weeds. *Live Stock*—Pastures very good, better than last year; stock thrive well; cattle and sheep quite free from disease. *Clip of wool*—Very good.

**LINLITHGOWSHIRE.** *Wheat*—About 44 bushels; good quality,  $1\frac{1}{2}$  tons straw; seed sown, about 4 bushels. *Barley*—40 bushels; good quality, about 25 cwt. straw; seed sown, 4 bushels. *Oats*—48 bushels; good quality, about 30 cwt. straw; 4 to 6 bushels sown. *Harvest* began usual time. *Hay* crop small, about 30 cwt. per acre. *Potatoes*—About 8 tons; disease showing a good deal in pits. *Turnips*—20 tons per acre; braided well, and very little second sowing. Pigeons in some places were hard on the braird. *Live Stock*—Pastures during the season of average growth and quality with last year; stock thrive; and cattle and sheep free from disease. *Clip of wool*—Average.

**HADDINGTONSHIRE (Upper District).** *Wheat*—28 to 32 bushels; 4 bushels sown; only a few acres sown. *Barley*—28 to 30 bushels; quality of grain and straw not so good as last year;  $3\frac{1}{2}$  bushels sown. *Oats*—36 to 40 bushels; grain and straw of good quality; 4 bushels sown. *Harvest* began about the usual time. *Hay*—2 tons, of good quality. *Meadow-hay*—Less productive. *Potatoes*—5 to 6 tons; some disease in "British Queen" variety, first observed about the middle of August; no new varieties planted. *Turnips*—20 to 22 tons, of good quality; crop braided well; only one sowing. No injury by insects or by weeds. *Live Stock*—Pastures of average growth; stock thrive very well; cattle and sheep free from disease. *Clip of wool*—An average one.

**HADDINGTONSHIRE (Lower District).** *Wheat*—40 to 44 bushels; quality good; fair bulk of straw; seed sown, 3 bushels drilled, 3 to 4 bushels broadcast. *Barley*—40 to 48 bushels; quality under average, owing to sunless summer and prolonged wet weather before harvest; heavy bulk of straw; seed sown,  $2\frac{1}{2}$  to 3 bushels drilled. *Oats*—40 to 48 bushels of the finer varieties, 48 to 60 of the coarser; oat crop light, owing to drought in May and June; seed sown,  $3\frac{1}{2}$  to  $4\frac{1}{2}$  bushels according to variety, drilled; broadcast sowing 1 bushel more. *Harvest* about ten days later than average, and commenced about 28th August. *Hay*—Fair crop; 2 to  $2\frac{1}{2}$  tons of Italian ryegrass and clover-hay. *Potatoes*—"Up-to-Date" varieties 5 to 7 tons of ware potatoes; "Langworthys," 4 to 7 tons; crop not so heavy as last year by 1 ton per acre, especially on the stiffer soils. *Turnips*—15 to 25 tons; a fair crop; would have been heavier but for the drought which brought on mildew in October, especially in the earlier and drier districts near the coast. *Live Stock*—A poorish grazing season; cattle and sheep free from disease. *Clip of wool*—Fair good clip.

**BERWICKSHIRE.** *Wheat*—About 40 bushels; straw fair bulk and fine quality; not much grown in the Merse now, and in the Lammermoor district practically none; seeding, about 4 bushels. *Barley*—In the Merse district 32 bushels, and in the Lammermoor district 30 bushels; straw short yield but fine quality; seeding,  $3\frac{1}{2}$  bushels. *Oats*—38 bushels in the Merse and 36 bushels in Lammermoor; straw fine quality, but deficient in quantity owing to dry weather in June; seeding,  $4\frac{1}{2}$  to 5 bushels. *Harvest* began about the end of August, and was all finished in both districts by the end of September, three weeks earlier than last year. *Hay*—32 cwt.; fine quality both as regards ryegrass and clover; if not pastured it was a fair crop, but if pastured it suffered from dry weather in June. *Meadow-hay*—Less productive; suffered also from dry weather; about 28 cwt. *Potatoes*—Good crop, better than last year; say, on an average, 7 tons; no disease; not aware of any new varieties being planted. *Turnips*—Swedes a fine crop, say all over 20 tons, and quality good; yellows middling crop; braird poor on most places owing to dry weather, with the result of a blanky crop—say average 16 tons; not much resowing. Insects nothing special. Yellow weed pretty prevalent. *Live Stock*—The pastures were good in the early season, but bare in mid-summer owing to dry weather, and later a great growth; all kinds of stock did well; cattle and sheep free from disease. *Clip of wool*—Quality good, and also a good average clip.

**ROXBURGHSHIRE.** *Wheat*—Little grown; quality good, both grain and straw much better than last year; seeding about 4 bushels. *Barley*—A fair crop, all very well harvested; the yield is very disappointing, but grain of good quality; seeding between 3 and 4 bushels. *Oats*—A good crop, and giving well to the acre, being well harvested; the straw is of excellent quality; seeding about 5 bushels. *Harvest* began about end of August and would be well over in about six weeks. *Hay*—Crop fully better in bulk than last year, nearly all well got, hence fine quality. *Meadow-hay*—Good quality, and nearly all well got. *Potatoes*—Fine crop, and better yield than last year; very little disease. *Turnips*—A fine crop in most districts, the open season being much in its favour; braided well, and little sowing over required. Almost no damage done by insects; no weeds of any consequence. *Live Stock*—Pastures fair, good in early autumn; stock did fairly well; very little disease. *Clip of wool*—About an average clip, and quality good.

**SELKIRKSHIRE.** *Wheat*—None grown. *Barley*—Crop was secured in fine order; 32 bushels; seeding,  $3\frac{1}{2}$  bushels. *Oats*—Light crop, but harvested in perfect order; 33 bushels; seeding, 5 bushels. *Harvest*—Usual time, in fine weather, and the whole crop was secured in first-class order and condition. *Hay*—An average crop of good quality. *Meadow-hay*—An average crop, and well got; 26 to 28 cwt. per acre. *Potatoes* were a good crop, and secured in fine order; about 6 tons per acre. *Turnips*—Excellent crop, much above the average, and suffered no injury from frost or any other cause. No injury by insects or by weeds. *Live Stock*—Pastures were good, and no scarcity of grass the whole season through, but owing to the bad spring weather stock finished only in moderate condition, except in cases of heavy artificial feeding. There was no disease in the county, but lameness resulting from sand and wet was more prevalent than usual, and no doubt was a cause of worst condition in many stocks. *Clip of wool*—A full average clip, and of good quality.

**PERRINSHIRE.** *Wheat*—None grown. *Barley*—Good quality, and weight up to 16 stone per bag; it was a good crop as far as it

gave 1 quarter per acre less than last year, or 30 bushels per acre; straw only fair, about 25 to 35 cwt., all well got; 4 bushels seed sown. *Oats*—Very light crop, generally well got, fair weight, 12 stone 4 lb. to 12 stone 8 lb., and about 30 bushels, or from 2 to 3 bushels under last year; straw light, from 25 to 35 cwt., or very similar in bulk to barley crop; 5 bushels seed sown. *Harvest* began about the usual time; a short good harvest. *Hay*—2 tons, or much the same as last year; also well harvested. *Meadow-hay*—Not so good in quantity, or quality either. *Potatoes*—6 to 8 tons; no new varieties; quality very good; no disease; last year potatoes were simply a blank with the frost, we scarcely in many places got the seed. *Turnips*—One sowing only; swedes are good; 16 to 20 tons; yellows not so good (from 10 to 12 tons), and a good deal of finger-and-toe; last year a very fine crop of turnips and swedes all over, but almost entirely lost with the early frost, which caused an enormous outlay for feeding-stuffs in spring. No injury done by weeds. *Live Stock*—Pastures much below an average up till far on in the summer; the bad autumn and winter made young grass very weak and poor—in fact it has never got properly over it yet. Stock thrive surprisingly well; indeed with the want of turnips they took it down, and kept it so all summer, but as stated above stock did well with a liberal supply of box meat; cattle and sheep free from disease. *Clip of wool*—Fine quality, but under an average.

DUMFRIESSHIRE (Annandale). *Wheat*—No wheat grown in this district. *Barley*—The extent of land sown with barley less than formerly. This is caused by recent bad harvests, and the low price realised by the grain, especially when damaged and unsuitable for malting purposes. This year, favoured by good weather, the crop was of good quality, both grain and straw; yield, 32 to 36 bushels grain, 22 cwt. straw; seed sown,  $3\frac{1}{2}$  to 4 bushels. *Oats*—A very favourable season for this crop. A good seed-time. A summer not too dry, followed by an exceptionally good harvest, insured the success of this crop. Yield of both straw and grain over the average. In the majority of cases the crop was secured without a drop of rain, but a good many farmers, with the memory of recent harvests before them, stacked too soon, and consequently the owners of travelling mills had a busy time for a fortnight in the end of September; seed sown, 5 to 6 bushels broadcast, 4 bushels drilled; average yield, 38 bushels. *Harvest* began about 18th August, or ten days before the usual time. The start was delayed by unsettled weather. *Hay*—Ryegrass an average yield of about 28 cwt. per acre; quality good; clover not so plentiful as last year. In regard to this it may be stated that the land in Mid-Annandale is not showing the growth of clover seen, say, twenty years ago. A good field of foggage after hay is now rarely seen. *Meadow-hay* was an average crop, and quantity very good. *Potatoes* lifted well. The average yield would be greater than last year, with a much larger proportion of big tubers. There was more disease when lifting than usual, especially among the common varieties. Reports say that they are keeping well in pits. Average yield, 8 tons per acre. No new varieties planted. *Turnips* over the average. An exceptionally good year for this crop. Yield may be put at 25 tons per acre. The crop braided well, and only in rare cases was a second sowing required. Damages by insects confined to cabbage crops. These were badly attacked by white maggot in the early stages, and as a result the crop was thin. Weeds were not unusually troublesome. In fact, all crops, and especially fields of turnips, showed that more time had been bestowed on the work of hoeing and weeding than is sometimes the case. *Live Stock*—Pastures were rather bare during the early summer, but a track of mild dry weather from 30th July to 20th August set this right.

There was afterwards no lack of grass, and store cattle were kept in the fields until far into December. Stock seemed to thrive, and stores came forward to the autumn sales in better condition than has been seen for some years. Cattle have been free from disease, but numerous complaints have been made about heavy losses from braxy amongst sheep, especially amongst hoggets on early turnips. The death-rate from this has been unusually heavy. *Clip of wool*—Clip under last season, and generally hardly so good.

**DUMFRIESSHIRE** (Nithsdale). *Wheat*—None grown. *Barley*—None grown. *Oats*—On account of drought in the early districts the crop was light. In later parts the rain coming in July lengthened out the straw, and greatly improved bulk. It would be quite 3 bushels less grain than previous year, and 5 cwt. less straw; 5 to 6 bushels seed sown. *Harvest* began about usual time. *Hay*—About 2 tons, or 5 cwt. more than last year; quality superior to anything for several years. *Meadow-hay* less by about 6 cwt. per acre. *Potatoes*—About 6 tons this year, about 5 tons 10 cwt. last; no disease; no new varieties were planted to any extent, and what were were no improvement on the older sorts. *Turnips*—About 18 tons, with better quality than last year; braird quite satisfactory, and no second sowing to any extent. *Oats* badly spoiled by small birds. *Weed*—Redshank caused considerable damage where neglected. *Live Stock*—Pastures better than last year, except on some of the drier land, which suffered from drought in the early summer. Stock came off in much better condition than in most seasons; cattle and sheep free from disease. *Clip of wool*—Quality good, and about an average.

**DUMFRIESSHIRE** (Eskdale). *Wheat*—None grown. *Barley*—None grown. *Oats*—Very good crops, with very fine quality straw, and heavy yield of corn, all being harvested in splendid condition, there being splendid weather all harvest, and for about a fortnight after harvest was finished; seed sown about 5 bushels. *Harvest* began about same time as last year, namely, about 5th September, and got good weather for cutting. *Hay* crops were heavier than last year, and would be about 30 cwt., and were mostly secured in excellent condition, but a lot had to sit in small pikes for about three weeks, as it rained nearly every day just after ryegrass hay was piked. *Meadow-hay*—Much the same as last year, but a lot was spoiled by bad weather, although perhaps about half would be well got. *Potatoes*—Very good crops, with very little disease, and were secured in splendid condition; there were no new varieties planted. *Turnips*—Very good crops, would be fully 20 tons; braird well, and came away very well, excepting a few which were late in being sown, but they came on slowly and made fair crops without having to be resown. Very little if any damage by insects. The turnip crops were troubled a little with redshank, especially on wet land. *Live Stock*—Pastures were very good, and seemed to grow a lot of clover, and would be both better growth and quality, also better than last year; stock did well. Very little disease among either cattle or sheep. *Clip of wool*—The quality would be under the average, and did not weigh well, which might be accounted for by sheep getting rather thin last spring, with bad weather, and turnips were also very scarce in the spring, being badly spoiled before storing.

**KIRKCUDBRIGHTSHIRE**. *Wheat*—A good crop of 5 quarters per acre; straw abundant, about 2 tons; grain good, but harvested in middling condition and soft; quantity of seed sown, 3½ bushels. *Barley*—None grown. *Oats*—Scarcely an average crop; seedling in bushels; straw short; in early districts badly harvested, but well got in the districts;

about  $4\frac{1}{2}$  bushels sown. *Harvest* began about usual time, and in some cases extended to four or five weeks in the early districts. *Hay*—A short crop owing to June drought; clover scarce; yield about 25 cwt. per acre; second cut very good, and full of clover. *Meadow-hay*—An excellent crop, and very well saved; yield, 25 cwt. *Potatoes*—The early potato crop was good and sound, inferior to that of 1909, but above average; yield, 10 tons; disease set in about end of August and injured late crops, which do not exceed 7 tons per acre; numerous under-sized tubers; not much disease. *Turnips*—An excellent crop, 20 tons; braided well and had no checks. No insect pests. Spurry common in oat crops owing to check from drought in June.

**WIGTOWNSHIRE.** *Wheat*—Practically none grown except on a few farms in the Moss of Cree. *Barley*—So little barley is grown now that I am unable to get any reliable estimate as to quantity. *Oats*—A good crop as respects grain, except on the early farms, where colour was spoiled with wet weather; quantity about 20 per cent under last year, and in some cases 1 to 2 lb. less weight; straw about 25 per cent less than last year; harvest began exceptionally early, from about the end of August, and was a record one for good weather; seed, 4 bushels with drill, 6 by the hand-sown. *Harvest* began about end of August and lasted about three weeks. *Hay*—The quantity varied very much in accordance with the condition of the land, from 25 cwt. to 38 cwt. imperial acre; the crop was fine quality. *Meadow-hay*—Not much difference from last year, but a great deal of it very badly got. *Potatoes*—As a general rule the crop was very good, running from 8 to 16 tons per imperial acre; no disease. *Turnips*—Weight from 18 to 30 tons; quality very good; crop braided well; no second sowing. Practically no damage of any kind by insects. No weeds; very fine weather allowed the crops to be kept very clean. *Live Stock*—Pastures better growth and quality than last year; stock of all kinds did well; cattle and sheep free from disease. *Clip of wool*—Quantity and quality just about average.

**AYRSHIRE.** *Wheat*—39 bushels against 45 in 1909; straw 36 cwt. against 40 cwt., weighing 60 lb. against 62 lb.; from 3 to 4 bushels seed sown. *Barley*—42 bushels and 25 cwt. straw against  $39\frac{1}{2}$  bushels and 23 cwt.; weighing 53 lb. against 52 lb.; from 3 to 4 bushels of seed. *Oats*—46 bushels and 33 cwt. straw against 50 bushels and 32 cwt.; weighing 38 lb. against 37 lb.; from 3 to  $5\frac{1}{2}$  bushels seed. *Harvest* began about the usual time, but little harvest work was accomplished till the weather improved about the middle of September, after which time the work proceeded with less than usual interruption. *Hay*— $31\frac{1}{2}$  cwt. against 32 cwt. in 1909; quality generally better than usual. *Meadow-hay*—36 cwt. against 34 cwt. in 1909; that portion saved early in the season was fine quality, some of the later lots being only moderate. *Potatoes*—8 tons; no disease of any consequence; no new varieties planted. *Turnips*—22 tons against 18 tons in 1909; quality not so good; fair braided; very little second sowing was necessary. No more insects than usual, only a little grub on oats and an odd lot of turnips affected with fly. Charlock seemed to be more prevalent than usual; in catch crops grown after potatoes chick-weed, groundsel, and other annual weeds seem to get worse every year, and in some cases are so bad as to choke out the crop entirely. *Live Stock*—Pastures were much better than last year, and were on the whole sufficient for stock, and quality above average; stock generally did well; cattle and sheep free from disease, with the exception of an odd case of sheep scab and one or two isolated cases of anthrax. *Clip of wool*—Much the same as last year.

**BUTE.** *Wheat*—None grown. *Barley*— $3\frac{1}{2}$  bushels sown; under average for straw; 36 bushels; well got; cutting last week in August. *Oats*—5 bushels sown; under average of straw, but well got; 40 bushels; very fine quality. *Harvest* began 1st September—a week later than usual. *Hay*—Under average, but well got; about 1 ton 10 cwt. *Meadow-hay*—Very little grown; under average; about 1 ton 5 cwt.; good quality. *Potatoes*—Early potatoes under average; about 8 tons; started digging 17th June; late potatoes 9 to 10 tons; comparatively little disease; seed—"Sutton's Abundance," "British Queen," "Up-to-Date," and "Langworthys"; new varieties—"Golden Dons" and "President"; no disease in them. *Turnips*—25 tons; quality good; braided well. No injury from insects or weeds. *Live Stock*—Pastures fair average; all stock did well; cattle and sheep free from disease. *Clip of wool*—Average.

**ARRAN.** *Wheat*—None grown. *Barley*—None grown. *Oats*—Crop under usual for bulk; quality good; grain well filled; about 32 bushels; seed sown, 6 bushels. *Harvest* began a few days earlier than last year, beginning to reap about the 26th of August. *Hay*—A small crop where eaten by sheep in spring—say, a ton per acre; seed extra quality, weighing over 30 lb. to the bushel in some cases. *Meadow-hay*—Very little; crop fair; not so well got as last year. *Potatoes*—Crop very good—say, 7 to 8 tons; quality excellent; rather smaller than usual, with some disease. *Turnips*—Extra good; say, 20 tons per acre on fair land; braided well; a good deal of finger-and-toe in some fields. No trouble with insects or weeds, weather being favourable for clearing. Not more than usual damage by weeds; thistles seem to be on the increase. *Live Stock*—Pastures rather less than average in early summer; good back-end growth; stock thrived fairly well. A good deal of foot-rot on low park land among sheep. *Clip of wool*—About the average, if anything less.

**LANARKSHIRE (Upper Ward).** *Wheat*—None grown. *Barley*—Practically none grown. *Oats*—32 to 36 bushels; a slightly lower average than last year, but of better quality both as regards grain and straw; 5 to 6 bushels sown. *Harvest* began in the beginning of September, about a week earlier than usual, and with excellent weather the crop was well and quickly secured. *Hay*—Average  $1\frac{1}{2}$  ton, a little less than last year; aftermath of average growth. *Meadow-hay*—Less than last year; well secured. *Potatoes*—A good crop, averaging from 6 to 7 tons, with little disease; no new varieties planted to any extent. *Turnips*—A good average crop, similar to last year; about 20 to 25 tons; crop braided well, and little resowing required. Not more than usual insects. Crops injured by weeds not to any greater extent than usual. *Live Stock*—Pastures fair, but failed a little earlier towards end of season; stock thrived well; cattle and sheep been free from disease. *Clip of wool*—Quantity and quality average.

**LANARKSHIRE (Middle Ward).** *Wheat*—The wheat crop of 1910 was bulky, but late and insufficiently ripened, and samples generally poor; 28 to 36 bushels; straw, 30 to 36 cwt.; seed sown,  $3\frac{1}{2}$  to 4 bushels. *Barley*—None grown. *Oats*—were a fair crop with plenty of straw, but are not thrashing out well to the acre; 25 to 40 bushels; straw, 30 to 36 cwt.; seed sown,  $4\frac{1}{2}$  to 5 bushels. *Harvest* commenced about the beginning of September, and the weather conditions were exceedingly favourable during September and the beginning of October. No damage was caused to crops, and all were gathered with very little expense and labour. *Hay*—Bromegrass and clover hay were cut from 1 $\frac{1}{2}$  to 2 $\frac{1}{2}$



tons; part of the hay was much spoiled by continuous rain. *Meadow-hay* and *Timothy* gave a yield of  $1\frac{1}{2}$  to 3 tons. *Potatoes*—1910 was a fair year for potatoes. There was a comparative freedom from disease, and the quantity would be from 7 to 12 tons. *Turnips* have been the largest crop of any previous year for a long period. The yield would be from 15 to 35 tons. There was very little damage by insects or by finger-and-toe. *Live Stock*—The season was late in starting in the spring, but during the midsummer, and especially during the autumn, there was a remarkable growth of pasture and aftermath; cattle and sheep have done fairly well; with the exception of occasional odd cases of anthrax the cattle have been free from disease.

LANARKSHIRE (Lower Ward). *Wheat*—40 bushels; quality rather under average; ripened slowly; straw good, about 2 tons; 4 bushels seed sown. *Barley*—10 acres sown, 25 to 30 bushels; quality second class; 1 ton straw; 4 bushels seed sown. *Oats*—40 to 45 bushels, quality good; straw, 30 cwt., quality good; 5 to 6 bushels seed sown. *Harvest* began usual time, September. *Hay*—Ryegrass and clover, quantity under average, about 30 cwt.; quality good; weather favourable for making hay. No *Meadow-hay* in Lower Ward; *Timothy* good, 2 to 3 tons. *Potatoes*—6 to 8 tons, rather under last year; no disease; same varieties. *Turnips*—10 to 30 tons; crop suffered on clay land by a wet August; generally braided well. No injury by insects or from weeds. *Live Stock*—Pastures average growth, and quality good; stock thrive well; a fine autumn; cattle and sheep free from disease.

RENFREWSHIRE. *Wheat*—40 to 44 bushels, quality good; straw good bulk, heavier than last year; seed sown, 3 bushels if drilled, about 4 bushels if broadcast. *Barley*—So little now grown unable to give report. *Oats* did not thrash out as well as promised, about 38 bushels to acre; straw quite as heavy as last year and of very good quality; harvest a little later than last year; rather broken weather at commencement, very good later on, finishing very satisfactorily for those in the higher-lying districts; if sown broadcast, about 4 bushels. *Harvest* began about five days later than last year. *Hay*—Average all over about 1 ton 18 cwt.; the quality quite as good as last year, although crop not quite so heavy taken all over. *Meadow-hay*—Little now grown, but where this done report much the same as last year. *Potatoes*—About same as last year; average yield all over about 7 tons 15 cwt.; no disease to speak of, and no new varieties to speak of. *Turnips*—Average all over about 15 tons. The crop did not braird well in many parts, and in some few cases re-sowing had to be resorted to; the crop in many places was very light compared to former years. *Live Stock*—Pastures quite equal to previous year; stock thrive on them; cattle and sheep free from disease. *Clip of wool*—Just about usual average.

ARGYLLSHIRE (Lochgilphead). *Wheat*—None grown. *Barley*—None grown. *Oats*—Not so bulky in straw as last year, but of excellent quality; grain better than last year, from  $6\frac{1}{2}$  to 7 quarters per acre; seed, about 5 to 6 bushels. *Harvest* began just about usual time, perhaps a day or two sooner. *Hay*—Ryegrass-hay not so heavy as last year, but quality very good; about  $1\frac{1}{4}$  tons per acre. *Meadow-hay* hardly as heavy as last year either, and in many cases badly got, owing to wet August. *Potatoes*—Potato crop heavier than last year by about 1 ton per acre; crop from 6 to 7 tons; not much disease, unless in early varieties; no new varieties planted. *Turnips*—Much about last year's crop; perhaps in some cases, where not too dry, a few tons more per acre, up to 30 tons; quality extra good; crop braided well; no second sowing. *Turnips*

a little damaged by fly. Less injury to crop by weeds owing to dry summer. *Live Stock*—Pastures of good quality, but, like last year, not so luxuriant; stock thrived very well; cattle and sheep free from disease. *Clip of wool*—Quality of wool very good, and much about the average.

ARGYLLSHIRE (Kintyre). *Wheat*—None grown. *Barley*—Less straw than last year; grain quite as good, about 40 bushels; seed about 4 bushels; extra well harvested. *Oats*—Less straw than last year; grain quite as good, from 45 to 55 bushels; seed about 5 bushels. *Harvest* began at the usual time; one of the best on record. *Hay*—Ryegrass-hay quite as good as last year, 2 tons per acre; all well got without a shower. *Meadow-hay* about the same, but badly got. *Potatoes* better than last year, 6 to 8 tons per acre; very little disease. *Turnips*—Fully better than last year, 25 to 30 tons on the best land; braided well; no second sowing. No damage by insects. Crops not injured by weeds to any extent. *Live Stock*—Pastures fully better than last year; stock thrived well; cattle free from disease; braxy bad among sheep on some farms. *Clip of wool*—Quality about the average; quantity rather over it.

ARGYLLSHIRE (Islay, Jura, and Colonsay). *Wheat*—None grown. *Barley*—Very little grown. *Oats*—Very good average crop, but not quite up to last year either in bulk of straw or weight of grain; about 5 bushels of seed sown. *Harvest* began about the usual time. *Hay*—The crop would average nearly  $\frac{1}{2}$  ton per acre less than last year, but is of good quality and well got. *Meadow-hay*—Rather under an average crop, but it was secured in better condition than last year. *Potatoes*—The crop not quite as heavy as last year, but better quality, less disease, and no injury done by frost. *Turnips*—Fair average crop; crop braided well, and not more than one sowing required; weight on good land about 25 tons per acre average. Injury by insects not greater than usual. Rather less weeds than usual; dry weather favoured the killing of weeds. *Live Stock*—Pastures—Growth not so luxuriant, but quality of grass better; stock thrived as well as usual; with the exception of some farms, where the death-rate is heavy, cattle and sheep have been fairly free from disease; many sheep die from braxy and trembling every year. *Clip of wool*—Good average.

DUMBARTONSHIRE. *Wheat*—From 32 to 36 bushels; straw about 2 $\frac{1}{2}$  tons per acre; fair quality; seed sown, 3 bushels. *Barley*—No return; very little in the county. *Oats*—Fair quantity; returns, from 48 bushels on the best land to 30 bushels on the higher land; good average yield both of straw and oats; seed sown, 5 bushels; the cold in May and dry weather in June caused the straw to be somewhat short on the light land of the higher districts. *Harvest* would have been about the usual time but for bad weather for about ten days. *Hay*—About the same as last year, about 2 tons; quality first-class. *Meadow-hay* was lighter than last year, and a lot of it was spoiled owing to rain in August and beginning of September. *Potatoes*—Average yield of potatoes much the same as last year, about 8 tons per imperial acre; there was some disease about the middle of September, rather more than last year; in some fields about 2 tons per imperial acre; no new varieties planted. *Turnips*—Fair good crop, from 20 to 30 tons per acre on good land; no resowing. No complaints of insects. Crops were free from weeds. *Live Stock*—Pastures fairly good, up to average; stock thrived very well; cattle and sheep free from disease. *Clip of wool*—Wool a fairly average crop, better than last year.

**STIRLINGSHIRE (Western).** *Wheat*—None grown. *Barley*—None grown. *Oats*—40 bushels; extra good this year, about 5 bushels. *Harvest* began about last week in August or first week in September; good and short harvest. *Hay*—About 1½ ton; quality a little better than last year; clover not very good. *Meadow-hay*—Average crop, but badly secured owing to the wet weather in latter part of August. *Potatoes*—6 to 7 tons; a little disease set in about beginning of October; no new varieties; crop lifted under good conditions. *Turnips*—20 to 25 tons; quality good; good braird; only one sowing. No injury by insects. *Weeds*—Red-shank mostly, but no worse than usual. *Live Stock*—Pastures a good deal better in general than last year; stock thrived well; no disease. *Clip of wool*—Good quality and average clip.

**STIRLINGSHIRE (Eastern).** *Wheat*—48 bushels yield; very good crop of straw and grain, which is thrashing fair; 30 cwt. straw; seed, 4 bushels. *Barley*—Very poor yield; 32 bushels; well harvested; 15 cwt. straw; 4 bushels seed. *Oats*—Yield, 40 bushels light grain; 20 cwt. straw; good fodder. *Harvest* began later than usual; latter part better. *Hay*—Middling crop all over; well got; 30 cwt. yield. *Meadow-hay*—Fair crop, but badly harvested. *Potatoes*—Very good crop; very little disease; 8½ tons; no new varieties. *Turnips*—Crop braired well; good crop on clay, but poor on dry field; lot of finger-and-toe; 18 tons yield. Grub in oats; some fields bad. No injury by weeds. *Live Stock*—Pastures fair; too dry in June; stock thrived middling; cattle and sheep free from disease. *Clip of wool*—An average.

**CLACKMANNANSHIRE.** *Wheat*—A fair average crop; above last year in bulk and better in quality; from 40 to 44 bushels; well got where not cut too early; 3½ to 4 bushels sown. *Barley*—Not so bulky a crop as last year, but of good quality of 34 to 38 bushels; fairly well secured. *Oats*—A small crop on the average, but of very good quality; the straw being more deficient than the grain; yield from 40 to 42 bushels; mostly secured in good order; 4 to 5 bushels sown. *Harvest* was delayed, after being ready for cutting, for about ten days to a fortnight with wet weather, which left the grain a little discoloured, after which there was excellent weather, and the crops were secured in good condition. *Hay*—A very light crop except in heavy carse land; more than a third under the average; secured in excellent condition; average yield barely 2 tons. *Meadow-hay*—Crop under the average; where early cut it was secured in good condition, but later cut hay was badly damaged with wet weather. *Potatoes*—Crop better than last year, or at least better secured; they came out of the ground this year clean and dry, whereas last year they were very much the reverse; very little disease; average yield 6 to 7 tons. *Turnips*—The crop varied a good deal; where they came right away early they were a full average crop, but owing to dry weather in the months of June and July later sowings were deficient; the crop on the whole is considerably under the average; not much second sowing. Not very much damage done by insects. The dry summer weather enabled the field weeds to be kept well down. *Live Stock*—There was a full crop of grass in the early part of the season, but got bare towards the finish; it being of good quality stock did well on grass all the time; little or no disease all the season. *Clip of wool*—A fair average of good quality.

**FIFESHIRE (Middle and Eastern).** *Wheat*—The autumn being a suitable one the usual acreage of wheat was sown in these districts, and although with other crops it suffered during the summer for want of sun-

shine, it ripened fairly well; however the return of grain will be disappointing—32 to 36 bushels,—and straw  $1\frac{1}{2}$  ton; seed sown broadcast 4 bushels, and with drill-machine 3 bushels. *Barley*—This crop, with a very much reduced acreage, was sown under favourable conditions, but with the disappointing summer it ripened irregularly, and good-coloured samples will be scarce; the average yield of grain will only be 36 bushels and weight of straw 1 ton; seed sown broadcast 3 bushels, and with drill-machine  $2\frac{1}{2}$  bushels. *Oats*—The same report as to wheat and barley applies to this crop; it was seeded under the best conditions, braided well, and gave promise of an abundant yield, but the want of sunshine reduced the yield of grain, which will be 48 bushels, and straw 1 ton; seed sown broadcast 5 bushels per acre, and with drill-machine 4 bushels. *Harvest* commenced about a week earlier than last season, the weather experienced being exceptionally dry and fine, and the grain crops were secured in record time and in the very best condition. *Hay*—This crop not so heavy generally this season on account of the severe winter and cold late spring, and the quality good except where heavily top-dressed; yield about  $1\frac{1}{2}$  tons. *Meadow-hay*—Very little grown in these districts. *Potatoes*—The crop was lifted and secured under the most favourable circumstances, very different to the conditions of the previous year, when the bulk of the crop in these districts was destroyed by the unprecipitated early frosts at lifting time; yield about 6 to 8 tons; no disease; new varieties increasing in popularity. *Turnips*—Owing to the very dry condition of the soil at sowing time the young braird came away irregularly, but with moist weather later on an abundance of healthy plants were the result; yield 25 to 30 tons; quality better than last year; bulbs sound and free from disease; no second sowing required. No injury by insects. Skellocks appeared amongst some of the turnip crops, but were easily destroyed and no damage was done, and thistles, dockens, and the smaller weeds not so much in evidence. *Live Stock*—Plenty of grass all through the season of good feeding quality; all classes of stock thrive well, and cattle and sheep have kept free of disease. *Clip of wool*.—About the average of former years.

FIFESHIRE (Western District). *Wheat*—Wheat on well-farmed land was generally a good bulky crop, considering the very late season at which much of it was sown, and should prove a fine sample, as it not only got a favourable blooming season but the dry summer suited it. It is too soon to estimate quantities, as in this district the most of the wheat crop is threshed out just before the following harvest; 4 bushels is the allowance of seed sown by hand. *Barley* also, on good land, cut up a bulky crop, but, against former experiences of dry seasons, is threshing out a most disappointing crop, but of fair quality, and with the miserable prices ruling will prove very unremunerative to the grower; the straw is good, and is standing more tramping in the cattle courts than usual, thanks to the fine harvest; sown by hand,  $3\frac{1}{2}$  bushels is the allowance of seed. *Oats* are a fairly good crop, and threshing much better than barley; the quality of the grain is good, and the fodder extra fine; many of the newer varieties give a yield of grain far superior to the old, but they are not favourites with millers, as they complain of the thick husk, but make excellent horse-feed, and the farmer must grow what pays him best. *Harvest* began about the usual time, or the last week in August, but farther back off the coast a week later. *Hay* cut up a very heavy crop, but of extra fine quality; it did not receive enough moisture at the young stages, which was more marked when the crop got no assistance from light manure. *Meadow-hay*—There is not much actual mowing hay grown in this district except in the poorer and hilly localities, but many are now laying down considerable areas to Timothy, or to a mixture of fine hay and a

said to pay better than many crops grown, and saves the labour bill. *Potatoes*—This crop is another disappointing one this year again for the farmer, and to judge from the luxuriant “top” shown all summer one would have expected an extra heavy yield, but the very reverse is the case, the tubers being very small in the run, more especially “Langworthys” and suchlike, and, as every one knows, it is size of tuber that makes the weight of crop; there is also a good deal of disease amongst the “Date” varieties, while the price is very moderate. *Turnips*—All the early-sown swedes braided well, and have turned out a heavy crop on all well-farmed land, and with little disease, and are now all pitted in prime condition, yellows again being below undersize; the severe dry weather, which in many cases prevented braiding, and some second sowing had to be undertaken, resulting in small crops, but when they braided at first the crops were very good. The less said about tons per acre the better, when one reads of the miraculous yields for sulphate of ammonia and other prizes, and on poor late farms too; how it is arrived at beats the ordinary man, and is not instructive reading. Crops not injured by insects to any extent. Crops not injured by weeds where work is kept in hand. *Live Stock*—Pastures got a bad start in spring from the cold weather, and where stocked early never seemed to get up properly, the want of rain telling on them; stock thrive well when they had a sufficiency of grass, but the want of feed told in many cases; cattle and sheep free from disease. *Clip of wool*—About the average and of good quality, and easily handled on account of the fine dry weather.

**PERTHSHIRE (Eastern District).** *Wheat*—Rather under average; grain not a good sample, and straw brittle; yield, about 30 bushels; seed, 3 to 4 bushels. *Barley*—Under average; grain and straw light; yield, about 32 bushels; seed, 3 to 4 bushels. *Oats*—Under average, and threshing badly; grain light in weight and darker in colour than last year; straw short but of good quality; yield, about 44 bushels; seed, 4 to 6 bushels. *Harvest* began about a week later owing to protracted wet weather, which considerably laid and twisted the crops and damaged the grain; weather set up about 1st September and remained excellent for harvesting, which on many farms was completed within three weeks. *Hay*—Thin and light, and not very well secured; yield, about 30 cwt. *Meadow-hay*—Very little grown. *Potatoes*—Under average; yield, 6 to 7 tons; “Earlies” and “Up-to-Dates” very considerably diseased. *Turnips*—A good sound crop; swedes did better than common yellow turnips, which latter came up patchy and irregular; yield, 22 to 24 tons; swedes braided well, yellows irregularly; not much second sowing required. Not more than usual injury by insects. Not more than usual damage by weeds. *Live Stock*—Pastures very bare all summer—too little moisture—but towards autumn there was an abundance of grass; stock thrive well where lightly stocked; cattle and sheep free from disease. *Clip of wool*—Good average.

**PERTHSHIRE (Central District).** *Wheat*—Very little grown; about 30 to 32 bushels; straw of fair quality on the whole, not so bulky as usual; 4 to 5 bushels sown. *Barley*—An average crop; grain and straw of fair quality, but the latter less bulky than usual; well got in almost every case; about 35 bushels; about 5 bushels sown. *Oats*—A fair average crop, and well got with few exceptions; straw less bulky; 40 to 50 bushels; 5 to 7 bushels sown. *Harvest* was fairly early, and in almost every case gave little trouble. *Hay*—The crop of ryegrass and clover-hay would be below the average in bulk owing to the dry summer, but was got in good order in almost every case; the crop would not average much above 25 cwt. *Meadow-hay* was generally a light crop, but im-

proved very much where cut late ; was got in fair order on the whole, especially in later places ; the average would not exceed from 20 to 25 cwt. *Potatoes*—The potato crop was a fair average, but much less than last year ; about 6 tons dressed ; there was little or no disease ; no new varieties planted to any extent. *Turnips*—The turnip crop was a fair one on most farms, and would average from 15 to 20 tons ; but swedes did much better than yellows on most farms this season ; the crop brairded somewhat irregularly, but there was little or no second sowing. Not much damage was done by insects, although wireworm was more noticeable on some farms than for some years. Weeds would be better kept in check than usual. *Live Stock*—Pastures did fairly well ; stock ate them bare during summer, but they came away well again after the rains in August ; stock did well at grass all season where not left out too long ; cattle and sheep have been practically free from disease, although sheep stocks in several instances will record a slightly higher death-rate than usual for no ascertained cause. *Clip of wool*—The clip of wool would be quite up to the average as to quality and quantity.

PERTSHIRE (Highland District). *Wheat*—There is no wheat sown. *Barley*—The area under barley is always getting less. Crop been thinner, but straw good, and all well got ; about 30 bushels ; and quality not so good as last year in colour or weight. *Oats*—Crop under the average, both in straw and grain, early summer being short of moisture ; 50 bushels, and lighter in natural weight. The heavy rainfall of the latter end of July and the whole of August left the grain dark in colour. *Harvest* began about the 1st September, and was general at the middle of the month, and completed in the early districts on the 30th. In the higher altitudes harvest began ten days earlier than last year. Crops ripened well, and all well secured throughout ; bulk of straw short throughout. *Hay*—Much below average ; 20 cwt. per acre ; clover more plentiful than 1909, and aftermath much better. *Meadow-hay*—Owing to the heavy rains of August the yield was heavier ; but owing to September grain harvest, much of the crop had to remain uncut until late in the month, but all well got, but quality not so good, being too dry and ripe before cutting. *Potatoes*—Not such a heavy crop as last year ; 5 tons, and more seconds in all varieties ; early kinds very much diseased before being lifted. Average under crop much less than formerly, and very few new varieties planted ; all secured before November frost. *Turnips*—Crop about an average, 26 tons, except where the soil was light, and not well farmed in such cases. Crop much under an average both in size and quality ; 15 tons. Very little finger-and-toe appeared. Swedes a heavy crop all over ; crop brairded well, coming early to the hoe ; no second sowing required. No injury from fly or other insects, nor from frost. Crops very free from all kinds of weeds, and much less damage than usual, owing to the fine weather in March and April being favourable for tilling. *Live Stock*—Pastures early, and continued good during the whole of summer, and in September and October were exceptionally good. Stock were very thriving during the whole season, but stock for fattening, or cows in milk, did not do well in August owing to the excessive rainfall. Both cattle and sheep free from disease. *Clip of wool*—The wool-clip was rather above the average, and the quality good ; in the glens and many high-lying farms great difficulty was experienced to get the ewe clipping done owing to the rain.

FORFARSHIRE (Western District). *Wheat*—38 bushels straw, rather shorter than last year ; 3 to 4 bushels of seed sown. *Barley*—28 bushels, much under last year's yield ; straw also shorter ; 3 to 4 bushels of seed sown. *Oats*—45 bushels ; much under last year's yield, straw, unless

on good well-managed land, under last year's crop; 4 to 5 bushels sown. *Harvest* began four days earlier than last year. *Hay*—1 ton 10 cwt.; clover under last year. *Meadow-hay*—Scarcely any grown in neighbourhood. *Potatoes*—6 tons; about 2 tons under last year; disease did appear, but not to any extent. *Turnips*—26 tons; no more than one sowing. Not much damage by insects; no damage worth mentioning by weeds. *Live Stock*—Pastures were slightly backward in spring, but they soon got over it, and continued good till very late in the season; stock did well; cattle and sheep comparatively free from disease. *Clip of wool*—A very full clip.

**FORTHFARSHIRE (Eastern District).** *Wheat*—40 bushels grain, and 1½ tons straw; quality of both very good; 3 bushels seed when drilled in, 4 bushels when sown broadcast. *Barley*—34 bushels grain, and 1 ton straw; quality of both deficient, straw being over-ripened, and the grain off colour from the same cause; drilled in sowing, 3 bushels; broadcast sowing, 3½ bushels. *Oats*—56 bushels grain, and 25 cwt. straw; quality of straw good, but colour of grain not quite up to average. Seed, old potato-corn varieties, 3½ bushels drilled in, and 4 bushels broadcast; new thick-skinned varieties, 6 bushels drilled in. *Harvest* commenced 23rd August, and was generally completed within four weeks. *Hay*—About 30 cwt., of good quality. *Meadow-hay*—Very little in this district. *Potatoes*—Much disease, and a poor crop amongst varieties of the "Date" type, but others, such as "Evergoods," "King Edwards," and "Northern Stars," a perfectly sound crop of 10 tons of excellent potatoes. *Turnips*—Best turnip crop, both swedes and yellows, for many years; 26 tons per acre, perfectly sound; braided well; no second sowing required. No injury by insects; no damage by weeds, unless the customary trouble with skellocks. *Live Stock*—Pastures during the season of average growth and quality with last year; stock thrived very well; cattle and sheep free from disease; an occasional case of anthrax amongst cattle. *Clip of wool*—An average clip of fair quality.

**ABERDEENSHIRE (Buchan District).** *Wheat*—There is no wheat grown. *Barley*—There was not so much barley sown last year, owing to the low price of the former year. Owing to the want of sunshine the quality was not up to the usual standard, being from 53 to 56 lb., while the quantity was from 4 to 10 bushels under normal quantity; seed sown, about 4 bushels. *Oats*—Owing to the rather cold unsettled weather during the summer the oat crop was not an average one, although it was secured in the best of order, as the weather was very favourable during the harvest time. The quantity of the oats was not up to usual standard as compared with former years, while the bulk of the straw is not so deficient as the corn. The quality of grain and straw is good, especially the latter, which is better than usual. Weight of corn per bushel about 40 lb.; seed sown, from 5 to 7 bushels. *Harvest*—The harvest began about the first week in September. *Hay*—Ryegrass and clover for hay secured in good condition, but scarcely equal to some former years; reaped 25 to 30 cwt. per acre. *Meadow-hay*—Scarcely any grown in the district. *Potatoes*—The potato crop was an abundant one, and generally of excellent quality. *Turnips* last year about 14 tons, this year an excellent crop of about 20 tons, and of good quality, and almost free from disease. Not much damage done by insects, but far more weeds than usual, owing to the wet summer. *Live Stock*—Pastures were not too succulent at the beginning of the season, yet stock made fair progress in the fields; cattle and sheep were free from disease. *Clip of wool*—The clip of wool was a very good average one.

**ABERDEENSHIRE (Formartine District).** *Wheat*—None grown. *Barley*—Last year 32 bushels; this year 30 bushels, with scarcely an average bulk of straw; bushel weight about 55 lb., being 1 lb. higher than last year; seed, 4 bushels. *Oats*—Last year 42 bushels, this year 37 bushels, with average bulk of straw; the bushel weight is about 42 lb., and the quality of the grain fair; seed, 5 to 7 bushels. *Harvest* began about the usual time, and the weather was good, and the crop was secured in fine condition. *Hay* crop similar to last year's crop, about 30 cwt. per acre. *Meadow-hay*—None grown. *Potatoes*—Last year 5½ tons; this year 6½ tons of good quality. *Turnips*—A great crop; last year 14 tons; this year 22 tons; damaged only as yet by rooks and wood-pigeons, which have become a pest. Not much damage by insects or by weeds. *Live Stock*—Pastures good growth and good quality; stock thrive well on them; cattle and sheep free from disease.

**ABERDEENSHIRE (Strathbogie).** *Barley*—The area under barley in 1910 suffered a considerable reduction as compared with previous years. It is perhaps just as well that such was the case, as the crop has yielded badly. There are instances of crops which gave every indication of a return of upwards of 4 quarters per acre, only yielding about 24 bushels of marketable grain, with from 8 to 10 bushels of seconds. The weight per bushel is also considerably below an average, and ranges from 53½ to 54½ lb. per bushel. *Oats*—Like barley, oats are also threshing below an average; and the reduction in quantity from early-formed estimates may be stated at about 8 bushels per acre. The natural weight is also disappointing, being from 1 lb. to 1½ lb. below an average year. Straw will be abundant, and is generally of good quality. *Harvest*—The harvest began about the usual time, and as good weather was experienced during the early period, a goodly portion of the crop was secured in excellent condition. Towards the end of harvest the weather unfortunately broke completely down, with the result that outstanding portions of crop were greatly destroyed. *Hay* gave a light crop, perhaps about 27 cwt. per acre. On the whole it was fairly well cured, even although the weather was rather unsettled for the purpose. *Potatoes* generally were a disappointing crop as regards yield, and the quality has not been good. There was no disease, neither were there any new varieties planted. *Turnips* have matured to be a heavy crop of healthy roots—perhaps the heaviest crop all over for quite a number of years. There was no resowing, neither was there any trouble from finger-and-toe, as there usually is. *Live Stock*—During the summer the pastures were of good average growth and quality, but numerous farmers complained that stock did not do so well as usual, especially during the latter portion of the grazing season. Cattle have been quite free from disease. Sheep on the other hand have in numerous instances been affected by scab. These outbreaks have been attributed to the persistent rains during the dipping period, whereby the dips were washed out from the fleece, thus giving no permanent effect to the dipping, however carefully done by the owners of the sheep. *Clip of wool*—The quality of the wool clip was average, but there were complaints of fleeces not weighing up to expectations.

**BANFFSHIRE (Lower District).** *Wheat*—None sown. *Barley*—About ½ less sown; 4 bushels seed; crop, from 24 to 36 bushels, 54 to 56 lb. per bushel; straw capital quality, but short of quantity. *Oats*—Crop under an average; 40 bushels, 40 to 44 lb. per bushel; 6 bushels seed; the best of straw, but quantity short. *Harvest* began normal time—about 1st September. *Hay*—Light crop owing to dry season; very fair crop, but clovers never looked well; 100 to 150 stones. *Potatoes*—Better crop than last year; 7 to 9 tons of sound roots of good quality. *Turnips*—



A full crop; swedes, say 25 tons; yellows grew well in the end of year, and finished a grand crop of 25 to 30 tons; crop braided well; no re-sowing. No damage by insects. Land was got well cleaned before crops were put down; weeds got little chance to grow. *Live Stock*—Pastures came away all right, but want of rain in June and July dried them up, consequently not an average grass season; quality fair; being a dry season (early part) live stock did well; a few cases of anthrax and a few sheep-scab cases. *Clip of wool*—Rather more than an average, but prices much better.

**BANFFSHIRE** (Upper District). *Wheat*—None. *Barley*—This crop turned out very deficient both in quantity and quality, as low as 2 quarters per acre of light weight, very few cases of 4 quarters being reached; seeded generally over 4 bushels per acre. *Oats*—A bulky crop of good straw, but not well ripened, particularly in the higher localities, therefore a great proportion of light grain or tail corn in that respect. There were on some outgoing farms valuations recorded of 8 quarters; this is extreme for this region, as the average seldom exceeds 4 quarters. *Harvest* began much about the ordinary date—the third week of September—and where it was pursued uninterruptedly a finish was obtained in fair condition; before the later farmers could finish a serious and lengthened period of rain set in, and crops exposed suffered considerable damage and have been imperfectly secured. *Hay*—The crop is rather variable—strong clays with clover gave fair averages, from 1 to 2 tons per acre; light soils, and even good moulded land, were much under. *Meadow-hay*—Meadow grasses in this quarter are generally pastured; they were pretty abundant, and came handy as there was little or no aftermath on the hay-fields. *Potatoes*—Rather a light crop, but good quality and no disease; they are only grown for home needs; "Up-to-Dates" are the special variety. *Turnips* gave good promise for a time, but have not turned out anything heavy, the bulbs somewhat irregular in size; this comes so far from a lack of second hoeing, farmers not being able to afford that as labour is too dear. The clearing of the turnip land was got over very favourably, and weeds were well kept under all throughout the season. *Live Stock*—Pastures did not stand well out in the lower grasses, the season being rather cold; the stock, as indicated under another head, profited by the meadows or rough fields and came out fairly well. *Clip of wool*—Wool a good average, and lambs a full crop, as the early season was moderate and free from tempestuous hurricanes and storms.

**MORAYSHIRE**. *Wheat*—Not much grown; fair crop; average 40 bushels, being  $5\frac{1}{2}$  bushels less than last year; quality fair; seed sown, from  $3\frac{1}{2}$  to 4 bushels. *Barley*—A fair-looking crop, but thin on the ground, and thrashed out badly; average, 30 bushels, being  $7\frac{1}{2}$  bushels less than last year; quality of both grain and straw fair, owing to good harvest weather, but a much larger quantity of light grain than usual; seed sown, from  $3\frac{1}{2}$  to 4 bushels. *Oats*—A good crop, but very much lodged before harvest on account of the wet weather, and which proved a big loss on many farms in some districts more than others; average, 45 bushels, being 4 bushels less than last year; grain fair, but a larger quantity of lighter grain than usual; straw very good owing to the fine weather at harvest; seed sown, from 5 to 7 bushels. *Harvest* began about the usual time; was general in the first week of September and finished by the first week of October. *Hay*—Grass and clover hay averages about 32 cwt., being  $2\frac{1}{2}$  cwt. less than last year; was secured in only fair condition, owing to wet weather at haymaking time. *Meadow-hay*—An average crop, but suffered a little from rainy weather; not

much grown in this county. *Potatoes*—Crop averages about the same as last year—viz.,  $6\frac{1}{2}$  tons; little or no disease in this county; a few new varieties planted. *Turnips*—A fair average crop; average,  $18\frac{1}{2}$  tons, being  $1\frac{1}{2}$  cwt. less than last year. On a few well-cultivated farms they will be 30 to 38, and some farms 40 tons per acre; no resowing heard of in this district. No damage from insects. The crop was not injured by weeds; nevertheless, on account of the continual wet weather, second hoeing could not be carried on to any profit without injury to the crop, hence the land is dirty and many parts will require spring cleaning. *Live Stock*—The pastures stood out well, and were of an average growth and quality; stock thrived very well. No disease in the county. *Clip of wool*—Much about the same average as last year both as to quality and quantity.

NAIRNSHIRE. *Wheat*—None sown, or at least too little to report on. *Barley*—Quantity, about 26 bushels; inferior owing to want of substance, consequently light, about 53 lb. is a fair average; failure of crop owing to too much wet in spring and ground sodden, also lack of sunshine; seeding, 4 bushels. *Oats*—About 36 bushels of fair quality; straw inferior on account of early lodging and never recovering; weight, about 42 lb.; seeding, say  $5\frac{1}{2}$  bushels. *Harvest* began about the average time. *Hay*—About 1 ton 5 cwt.; quality good, but a little damaged in making; the best grass year on record for both rye-grass and clover. *Potatoes*—About one-third less than last year in bulk and a larger proportion of small ones, say 6 tons; in some places a little disease was seen, beginning in August; also a little wire-worm was seen; no new varieties. *Turnips*—About 15 tons; quality being much better than last year; they braided well except a few sowings about the 26th to 29th of May; that part seemed to be touched by frost, and had to be resown in some cases, but not many. The barley crop is somewhat worse with smut this year than usual. *Weeds*—Turnips were hard to keep clean on account of almost steady wet, otherwise normal. *Live Stock*—The pastures were never so plentiful nor so well mixed with clover; cattle and sheep would have done better but for the wet. Cattle and sheep fairly free from disease, about normal. *Clip of wool*—Just about an average.

INVERNESS-SHIRE (Inverness District). *Wheat*—Very little grown in this district; seed sown, from 3 to 4 bushels; return has been very unsatisfactory. *Barley*—The crop this year has been one of the worst on record, yielding only from 20 to 24 bushels; the dry weather to start with, followed by the very wet weather afterwards, had the effect in many places of making the clover seeds grow higher than the barley. *Oats*—A fair crop, but very much laid; in general a good colour and fair weight; yield, from 40 to 48 bushels; quantity sown, from 5 to 7 bushels, according to land, variety, &c. *Harvest* started a little later than usual, but was one of the best on record, hence all the crops, even those lodged, were secured in good order. *Hay*—Average, from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  tons; most of it got too much rain, but in some cases it was secured in good condition. *Meadow-hay*—Very little grown, but more productive than last year. *Potatoes*—Very poor, yield of fair quality; not so much disease as was at first anticipated; a few new varieties tried, but the "British Queen" for early use, and "Up-to-Date" for the main crop, seem to be the favourites still. *Turnips*—Braided very irregularly, and many cases of second sowing; in some places the crop was above an average—say yellows about 22 tons, and swedes up to 30 tons; in some fields, however, not one load of sound turnips could be got owing to "finger-and-toe." The annual weeds were as usual prevalent in the

fields troubled with "finger-and-toe," others were nothing to speak about. *Live Stock*—Pastures held out very well, but quality questionable; stock did not do so well on them as usual; cattle and sheep free from disease.

INVERNESS-SHIRE. *Wheat*—None grown. *Barley*—None grown. *Oats* were much better than last year, and have thrashed out exceedingly well; about 5 bushels to the acre sown. *Harvest* began fully ten days earlier than last year, and the weather was of the best during the whole period. *Hay*—The first year's grass was much lighter than usual, but this was owing to it being grazed by sheep too late in the spring, a custom very common with sheep-farmers. *Meadow-hay*—Crop the same as last year. *Potatoes*—The potato crop was hardly up to last year, but owing to a more favourable harvest and no damage done by frost as last year, it might in the spring weigh out of the pots fully better. *Turnips*—The turnip crop in most districts is much above the average. The land being prepared under the best conditions, the crop got away without a check, and continued to grow during the winter. No injury by insects or weeds. *Live Stock*—Pastures were during the season of average growth and quality with last year; stock thrived well, as the year had been most favourable; cattle and sheep free from disease. *Clip of wool*—Wool clipped and weighed well, and fully an average.

INVERNESS-SHIRE (Lochaber). *Wheat*—None grown. *Barley*—None grown. *Oats*—Quantity and quality of corn and straw above average of previous years; 6 bushels sown. *Harvest* began five days before last year. *Hay*—4 cwt. under last year; quality an average. *Meadow-hay*—Less production. *Potatoes*—9 cwt. under last year; no disease. *Turnips*—15 cwt. above last year; braided well; no second sowing required. No injury by insects. Carron weed less than usual. *Live Stock*—Pastures during the season of average growth and quality with last year. Stock thrived well. Cattle and sheep free from disease. *Clip of wool* under the average.

ROSS-SHIRE (Dingwall and Munlochy). *Wheat*—Rather more grown than of late years; season was too cold to make the quality average; straw abundant. *Barley*—Fewer acres sown; quantity of grain, say 20 per cent below average; quality also below average; straw average in quantity; quality deteriorated in many cases as crop badly laid; seed, 4 bushels. *Oats*—More sown; quantity of grain below average; straw full average; quality fine, save where seriously laid; weather cold and wet from 13th July to 22nd August; crop secured with hardly a shower. *Harvest* began about the usual time, say 24th August. *Hay*—The quantity of hay, both of clover and ryegrass, was as usual, clover perhaps over average, say crop would weigh  $1\frac{1}{2}$  ton; the quality was not average, owing to weather while making. *Potatoes*—The potato crop was very light on many holdings, others fair; some attacks of disease commencing in July; weight down to 4 tons on some holdings. *Turnip* crop very various, some very light acres; a good deal of finger-and-toe; re-sowing in a few cases; braird generally good; weight very various, say 10 to 30 tons; growth slow, with cold wet weather in July and August. No injury by insects. Root weeds difficult to keep down owing to moist season. *Live Stock*—Pasture growth over average; quality suffered from wet. Stock thrived not so well. Cattle and sheep free from disease. *Clip of wool*—Average good.

ROSS-SHIRE (Tain, Cromarty, and Invergordon). *Wheat*—Quantity and quality barely as good as last year; 32 to 36 bushels; 4 bushels sown.

*Barley* generally a poor crop; average, about 28 bushels;  $3\frac{1}{2}$  bushels sown. *Oats* an average crop, 52 to 56 bushels; grain, good quality; straw rough on good land; 4 to 6 bushels sown. *Harvest* began about usual time, last week of August. *Hay*—Average in quantity and quality,  $1\frac{1}{2}$  ton; well mixed with clover as a rule. *Meadow-hay*—None grown. *Potatoes*—3 to 4 tons less than last year, due to shaws withering from disease early in August; tubers small but sound; 5 to 6 tons. *Turnips*—Where healthy a good crop, 25 to 30 tons, but in many places only half a crop owing to finger-and-toe; crop as a rule braided well, and no second sowing. Practically no insect damage. Couch-grass troublesome in turnips owing to wet summer, and charlock and runch bad in grain crops. *Live Stock*—Pastures were poor till end of May, but afterwards grew very strongly; during August and September distinctly over average. Stock on whole throve well. Cattle and sheep were healthy; maggots in sheep very troublesome in July and August. *Clip of wool*—Wool on hogs an average clip, on ewes barely so good as last year.

SUTHERLANDSHIRE. *Wheat*—None grown. *Barley*—None grown. *Oats*—This crop was lighter than last year, probably 4 to 6 bushels less, and straw in same proportion. We generally sow from 5 to 6 bushels potato-oats. *Harvest*—About a week later than usual. *Hay*—Ryegrass and clover fully as good as last year. *Meadow-hay* rather better. *Potatoes*—A fair average crop; no disease; quality excellent; "Champions" do best in this district. *Turnips*—A good turnip crop, and not more than one sowing required; estimated weight, 18 to 20 tons per acre. No injury by insects or weeds. *Live Stock*—Both quantity and quality of pastures better than preceding year; stock throve very well; cattle and sheep free from disease. *Clip of wool*—Quality very good, and a fair average weight.

CAITHNESS-SHIRE. *Wheat*—None grown. *Barley*—A fair average crop of about 40 bushels of bere or barley. The straw of this crop is not so suitable as oats for fodder. The agricultural returns give an acreage under barley in Caithness in 1910 as 979, whereas in 1909 it was 1027 acres. *Oats*—This is the staple grain crop of Caithness, 32,337 acres being under oats in 1910. This is more than 1000 acres above 1909. From a sowing of about 5 bushels there would be instances of 5 quarters reaped—the grain good, weighing and milling well. *Harvest* weather was exceptionally favourable till 7th November, when there was a rainfall of about 3 inches in twenty-four hours. There was hardly a dry day after in 1910. *Harvest* began about the third week in September. This is about the normal period. Few remember the weather so continuously dry throughout October. But after the first week of November the rains were heavy, and any stocks out then had no chance to be got in dry. *Hay*—A fair good crop of hay was secured of about 2 tons; there was also a good aftermath. *Meadow-hay*—From 1 to 2 tons would be the average meadow-hay crop. *Potatoes* were a reasonably fair crop of 6 to 10 tons per acre; this is quite up to last year. Disease was not worse than last year, but there were fungoid growths occasionally seen. New varieties have been tried, but the "Champion" holds its own for weight per acre, flavour, colour, and desirable cooking properties with any of the introductions. *Turnips*—The turnips laid down early were best, as they germinated directly. Those got in late did not spring till rain came at the end of June, and then they were blanky, and not much more than half a crop. The swedes were regular, and give about 14 tons per acre; the yellows, early sown, 17 to 27 tons. There was not much to complain as to grub damage, which did a good deal more havoc last year. Weeds are prevalent and combined

efforts are desirable to prevent the spread of thistles, coltsfoot, and all winged weeds. Skellock continues a yellow peril, and dock and sourag are yet in the land. *Live Stock*—Pastures kept on well into harvest, and there was a fairly close bottom; sheep and cattle were healthy. The dipping of sheep is yet felt burdensome, but the regulations are acknowledged to be effective in abolishing "scab" by getting all the "acari" killed. Tuberculosis seems lessening, and the energetic efforts to grapple with anthrax are hopeful. *Clip of wool*—There was an average clip of good wool from Cheviot, Leicester, and Blackface.

**ORKNEY.** *Wheat*—None grown. *Bere*—A fair good crop, about same as last year; average yield about 35 bushels, weighing 47 lb.; seed,  $3\frac{1}{2}$  to  $4\frac{1}{2}$  bushels. *Oats*—Part of the lea oats was sown in fine weather early in April, but the latter part of the month was wet and stormy, and the remainder of the oats was not sown until the first half of May. The summer was dry, and straw, especially on shallow soils, was light, but the grain was a fair good crop, better than last year, which suffered badly by shake. Some oats took a second growth after the rain came, and had to be cut rather green; average yield about 30 bushels, weighing about 39 lb.; seed, 4 to 6 bushels. *Harvest* began about the 19th September, being a week earlier than last year, and was finished in good time. The weather was at times stormy, but while not strong enough to shake the grain, made it soon fit to cart into the stackyard. *Hay*—Owing to the drought hay was a light crop, about same as last year, weighing about 17 cwt. per acre. *Potatoes* were a fair good crop, much the same as last year; average about  $4\frac{1}{2}$  tons per acre. *Turnips* were laid down early in dry weather, and some had to be resown. They were a good crop, but a little lighter than last year; average about 11 tons per acre. There was very little damage done by either insects or weeds. *Live Stock*—Pastures were fairly good all spring, but owing to the drought were rather short all summer; stock, however, thrived fairly well on them, and were free from disease. *Clip of wool*—The clip was about an average.

**SHETLAND.** *Wheat*—None grown. *Barley*—None grown. *Oats*—Under average owing to the dry summer; quantity sown generally from 4 to  $4\frac{1}{2}$  bushels. *Harvest* began three weeks before the usual time. *Hay* never weighed here, but under the average of the last three years. *Meadow-hay* crop less. *Potatoes*—Above the average of the last ten years, yielding 80 barrels per acre in quantity; no disease. *Turnips*—Above the average; very heavy crop this year; only one sowing. No injury by insects or by weeds. *Live Stock*—Pastures under the average; quality good; stock thrived excellent; cattle and sheep free from disease. *Clip of wool* good; over average in weight per fleece.

## THE WEATHER OF SCOTLAND IN 1910.

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the Scottish Meteorological Society.

THIS report consists of (1) a general description of the weather over the Scottish area from month to month; (2) a selection of rainfall returns, in which each county of Scotland is represented by one or more stations. It may be noted that all the temper-

ature readings referred to are from verified thermometers exposed in the regulation "Stevenson Screen."

### JANUARY.

The first month of the year was characterised by a very wide range of temperature conditions. The general mean was  $35^{\circ}7$ , or  $1^{\circ}6$  below the normal, the deficiency being much more marked as regards the nights than as regards the days. Very mild weather early in the month, and a close approach to the normal about the middle, were followed by a spell of cold weather, which became very acute during the fourth week when some remarkably low temperatures occurred. At Balmoral and Logie Coldstone, on 28th, the thermometer in screen fell to  $10^{\circ}$  below zero, and readings in the screen below zero were recorded also at Loanhead (Logie Coldstone), Lednathie, Kettins, Perth, Stronvar, Buchlyvie, and West Linton. Lower readings than that at Balmoral and Logie Coldstone have been registered only in January 1881, in February 1892, in February 1895 (when a reading of  $17^{\circ}$  below zero occurred at Braemar, that being the lowest ever recorded in the British Isles), and in December 1860. At Aberdeen on 27th the maximum reading was as low as  $18^{\circ}$ , and the mean temperature of the fourth week there was more than  $15^{\circ}$  below the normal. The highest reading of the month was  $58^{\circ}$  at Crathes on 2nd, and the great variety of conditions experienced may be illustrated by the fact that whilst at Nairn the mean temperature of the week ending 8th was as high as  $45^{\circ}0$ , that of the week ending 29th was as low as  $22^{\circ}4$ .

The month was the wettest of the year over part of the Western Highlands, and had a rainfall considerably above the normal in many districts. In the south, however, and in Forfarshire there was a well-marked shortage. On 1st, Kinlochquoich in West Inverness-shire had as much as 3.45 inches of rain, but as a rule the greater part of the month's precipitation was registered between 8th and 17th, when some heavy falls occurred in west and north-west. Thus Glenquoich had daily amounts exceeding 1 inch on as many as seven days during that period, with about 2 inches on 8th, 13th, and 16th. Heavy falls occurred here and there towards the close of the month; but before the 8th and after the 17th there were many fine days.

During the fourth week weather of an extremely wintry character was experienced, with northerly to north-westerly winds and a heavy snowfall. A snowstorm was also general about the middle of the month, and severe south-westerly gales occurred from about 8th to 11th and from 16th to 18th.

Thunderstorms were unusually frequent, between 8th and

18th, at Edinburgh on four days and at Fort William on five.

Sunshine was rather above the average, decidedly so in the extreme north and north-west.

#### FEBRUARY.

The month was one of unusually uniform temperature conditions, and there was no period of extreme cold such as had characterised the preceding month and the last two months of 1909. On the whole, the coldest weather occurred about 9th and towards the end of the month, whilst the third week was decidedly mild. The general mean for Scotland of  $38^{\circ}\cdot 1$  was practically equal to the normal,—south of the Forth and Clyde there was a slight temperature excess,—and the extreme readings were  $54^{\circ}$  at Logie Coldstone on 11th and  $9^{\circ}$  at Balmoral on 9th.

As regards rainfall there was an unusually sharp contrast between conditions in northern and southern districts. In the north rain was infrequent and the month extremely dry, Dunrobin having only half the normal, Nairn only 1 inch, and Fortrose only 0·63 inch. Elsewhere, except at a few eastern stations, there was an excess, large in the west and very large in south-west and south. In South Ayrshire, indeed, the month was the wettest February since 1883, but as a rule within the area of excess it was much less wet than 1903. There were, however, no remarkably heavy individual falls, but at many stations there were only one or two rainless days, and in several districts the persistency of the rains caused flooding during the third week.

Snow did not occur to any noteworthy extent, but the weather of the month was continuously unsettled, and from about 16th to 21st of a very stormy character.

Thunderstorms here and there in the west on 11th and 18th, and in south and south-east between 21st and 24th.

The amount of sunshine was somewhat above the average in most districts.

#### MARCH.

The month was a mild one in all districts, the general mean being  $42^{\circ}\cdot 2$ , or 2·6 above the normal. The first week was mild, and the second and fourth exceptionally mild, and practically the only incursions of cold occurred between 14th and 16th, with northerly winds about 18th, and at the end of the month. The extreme readings were  $62^{\circ}$  at Crathes on 20th and 29th and at Nairn on 30th, and  $20^{\circ}$  at Sumburgh Head on 18th.

The month's rainfall was decidedly below the average in most

districts but above it in the Nith valley. East Lothian and Berwickshire had less than half their normal amounts, and at several stations, such as Arbroath, Edinburgh, and Turnberry, the month's aggregate was less than 1 inch. From 18th onwards the weather was extremely fine, and rainless, or all but so, in nearly all districts; but earlier in the month some heavy falls occurred on 1st, between 7th and 10th, and about 16th. On 1st, Leadhills had about  $2\frac{1}{2}$  inches and Cargen nearly 2 inches.

Falls of snow and sleet were very general about 18th, and high winds occurred at the beginning and about the middle of the month.

Thunder in Roxburghshire on 8th and 9th, and in the south on 10th.

Sunshine was again somewhat above the normal in most districts, but slightly below it in extreme north-west and south-east.

#### APRIL.

The mean temperature of all the contributing stations was  $42^{\circ}\cdot 1$ , or  $2^{\circ}\cdot 0$  below the normal,—almost the same as the mean for March. The temperature deficiency was everywhere well-marked, and more pronounced by day than by night. There were practically no mild days, and at times in various districts the highest readings for the day were below  $45^{\circ}$ , or even below  $40^{\circ}$ . During the first week conditions were not unseasonable, but thereafter, under the influence of north-westerly winds, there were touches of quite wintry weather and temperature was often much below the normal. The coldest nights were, as a rule, experienced at the opening or about the middle of the month, the lowest readings being  $18^{\circ}$  at Eskdalemuir on 2nd,  $23^{\circ}$  at West Linton on 2nd, and  $23^{\circ}$  at Balmoral on 16th. The highest reading was  $62^{\circ}$  at Crathes on 10th and at Cally (Gatehouse) on 21st.

Not only was the month extremely cold, but it was everywhere wet or very wet. Between the Forth and the Clyde and towards north-west and north many stations had fully twice their normal amounts, and Inverness and Nairn fully thrice. At Nairn, indeed, where the month was the wettest of the year, the total of 4·63 inches was much above that of any other April back to at least 1866, whilst during the last fifty years a wetter April has been experienced at Edinburgh only in 1871 and at Glasgow only in 1867. There were no heavy falls during the first ten days, but from 11th to 18th large amounts were recorded at many widely scattered places—fully 2 inches at Tongue on 13th,  $1\frac{1}{2}$  inch at Cargen on 12th, and 1·70 inch at Perth on 16th. Thereafter rain was frequent until the end of the month, with rather heavy falls here and there on 27th.



The heavy rains were accompanied by weather of a stormy type, with snowstorms in many districts about 16th and 17th and again towards the close of the month.

Thunderstorms occurred rather widely about 9th, 18th, and 24th.

Sunshine was as a rule below the average.

### MAY.

The cold weather of April was prolonged in nearly all districts throughout the first two weeks of May, when mild conditions prevailed until nearly the end of the month. During the third week, however, with easterly winds and fogs, temperature was decidedly low around the Firth of Forth and towards the south-east, the maximum thermometer at Leith failing to reach  $50^{\circ}$  on several days. The general mean for the month was  $49^{\circ}4$ , or  $0^{\circ}4$  above the normal, northern stations closely agreeing with their normals, but the south-eastern counties showing a slight deficiency. The coldest weather occurred between 6th and 9th. On 6th the highest day temperature at Eskdalemuir was only  $40^{\circ}$ , whilst the lowest night reading anywhere reported was  $22^{\circ}$  at West Linton on the night of 8th. Highest readings occurred as a rule about 20th, 22nd, or 25th, the actual highest being  $78^{\circ}$  at Cargen, near Dumfries, on 22nd.

The distribution of rainfall relatively to the normal was of an irregular character. In north and north-west there was a decided excess, about 60 per cent at Dunrobin and Fort Augustus, but elsewhere several districts had only from one-third to one-half of their normal amounts. From 1st to 8th the weather was unsettled in most districts, and thereafter rain was more or less general about 12th and 18th. From 20th onwards the weather was almost everywhere fine, except on 29th, and the month was, on the whole, notable for the general absence of heavy falls. Within the areas of deficiency the amounts registered on several days were quite nominal.

Wind force was as a rule moderate, except early in the month. Snow and hail rather frequent during the first week or so.

Thunderstorms at widely scattered places about 9th, 16th, and 20th.

Sunshine records differed little from the normal, except towards the north-west, where there was a large excess. The Hebrides, indeed, appears to have been the sunniest district of our islands, Castlebay (Barra) averaging one hour per day more than Bournemouth and two hours per day more than Jersey.

## JUNE.

The mean temperature of  $54^{\circ}7$  practically agreed with the normal; but in south and south-west the month was of rather more than average warmth. Somewhat cold weather was experienced early in the month, with light north-easterly winds, and decidedly cold weather during the last few days, with northerly winds. During the second week conditions were exceptionally fine, with a large amount of sunshine,—more than half of the stations reaching  $75^{\circ}$  or over on one or more days, and Buchlyvie  $80^{\circ}$  on 10th. The lowest reading was  $30^{\circ}$  at Balmoral on 28th, and at times the nights were unusually cold for a summer month, with clear skies promoting active terrestrial radiation or with winds from some northerly point.

As regards rainfall, there was here and there a trifling excess or an average rainfall, but in most districts the month was exceptionally dry, with less than half the normal amount at several stations and only three-tenths of the normal at Fort-William. At Dunrobin only two days, and at Crathes only three days, had amounts exceeding one-tenth of an inch, and in all districts there were many rainless days. As a rule the greater part of the month's total was accounted for on one or two days by brief downpours during severe thunderstorms; and falls exceeding 1 inch occurred at Cargen on 8th, at Rothesay, Turnberry, and Pinmore on 20th, and at Buchlyvie on 21st. Generally speaking, rain was frequent from 20th onwards. At Grantown-on-Spey the 23rd, with 1.66 inch, was the wettest day of the year.

Thunderstorms were of frequent occurrence, except in north and north-east, the most unsettled periods being around 9th and 10th and from 20th to 23rd.

Sunshine was as a rule above the average, except towards the north-east. As in the preceding month the Hebrides experienced a large excess, and at times the contrast between Scotland and England was remarkable. Thus for the week ending 11th, Stornoway had an aggregate of 87 hours as compared with 16 at Ventnor, 18 in Jersey, and 19 at Torquay.

## JULY.

The mean temperature was  $55^{\circ}4$ , or  $1^{\circ}9$  below the normal. A few western stations had means equal to the normal, whilst the temperature deficiency was very decided towards north and north-east. In eastern districts, with a considerable excess of northerly and easterly winds, conditions were almost continuously unfavourable, and there was a remarkable absence of anything like high day temperatures. At Aberdeen the maxi-

imum for the month—which is normally the warmest of the year—was no higher than 64°. In western districts, on the other hand, some warm weather was experienced about the middle of the month, with a reading of 83° at Dumbarton on 14th, and of 80° or over at several stations on varying dates. The lowest reading reported was 31° at Balmoral on 11th and 24th.

The rainfall of the month was in most districts decidedly above the normal—here and there, as at Stronvar and Dumfries, by fully 50 per cent. Some north-western stations had, however, a slight deficiency; Aberdeen only half its normal amount; and Orkney and Shetland a decided shortage, Deerness having no fall of as much as a tenth of an inch until 24th. Generally speaking, there were three well-defined periods. The early days were of a very unsettled character with a severe rainstorm on 5th, when Edinburgh, Dumfries, and other stations in east and south had more than 1 inch. An abrupt change took place about 6th, and until about 18th the whole country was practically rainless; whilst during the last twelve days or so conditions were continuously unsettled, with some very heavy falls. At Edinburgh, the 25th, with 1½ inch, was the wettest day of the year.

Thunderstorms occurred rather widely at times during the last ten days, except in northern districts.

Sunshine was deficient on the East Coast, but above the average on the West; and, again, some Scottish stations compared most favourably with English districts where large amounts of sunshine are usually experienced. Thus the aggregate for the month at Turnberry was 238 hours, at Oban 213 hours, as compared with 162 at Bournemouth, and only 80 at Cromer on the coast of Norfolk.

#### AUGUST.

The mean temperature was 56°·9, or 0°·3 above the normal. Most stations agreed closely with their normals, but in Shetland there was a decided temperature excess. Throughout the month the nights were fairly mild, and until about 20th conditions showed an improvement on those experienced in July. Thereafter, with easterly and north-easterly winds, the days were decidedly cold. A feature of the month was a remarkable outburst of heat in Shetland about the end of the first week. The highest reading reported in the British Isles during the month was one of 82° on 6th at Sumburgh Head—almost the most northerly station,—and that reading was as much as 12° above any other at that station during a forty years' record. Most mainland districts had their warmest days from 9th to

12th, whilst lowest readings occurred, as a rule, on 23rd, when West Linton reported 32°.

As regards rainfall the month was by far the most remarkable of the year. There was a large excess in nearly all districts: several stations had twice their normal amounts, whilst at Crieff the total of 11·30 inches was nearly thrice the normal. A large part of the country had more than 6 inches of rain, and a considerable central area more than 10 inches. In some of the wettest districts the month was less wet than the disastrous August of 1877; but at Crieff the total was 4 inches above that of any other August in a record going back for thirty-five years; whilst at Cargen, near Dumfries, the aggregate was above anything recorded there during the past fifty years. There was a comparatively fine spell from about 6th to 13th, whilst at many stations rain fell on every day from 14th to 30th. As a rule, much the greater part of the month's total was concentrated between 20th and 28th, when some remarkably heavy falls occurred. Thus 2 inches or more were registered at Dumbarton on 20th, at Crieff on 24th, at Stornoway on 26th, and at Helensburgh, Dumfries, and Cally on 28th. At Crieff the total fall from 23rd to 25th was as much as 5·19 inches, of which 3·50 inches fell in twenty-three hours.

The heavy rains from 22nd to 24th caused flooding in many districts, especially in Central Perthshire, whilst thunderstorms were somewhat widely experienced at that time. During the last ten days of the month wind force was as a rule high, with actual gales here and there on the coast.

In most districts the month had less than the normal allowance of sunshine, but in Shetland it was exceptionally sunny. Indeed, in the northern islands the summer as a whole was one of the finest on record.

#### SEPTEMBER.

The barometer stood at an exceptionally high level until near the end of the month, and inland stations had, as a rule, mean temperatures above the normal, whilst coastal districts were rather colder than usual. The general mean of 52°·9 practically agreed with the normal. With more than the average amount of winds from between north and east, temperature in the extreme north remained continuously low for the time of year. Highest readings occurred about 4th, 11th, 16th, or 24th—the highest being 73° at Perth on 4th, and lowest at most stations on 20th, but here and there on 8th or 16th, and in Shetland on 25th. The actual lowest was 27° at Eskdalemuir on 16th.

As regards rainfall the contrast with August was striking, and in all parts of the country the month was extremely dry.

A great part of eastern Scotland had less than 1 inch of rain; few stations as much as half their normal amounts, and many only one-third or less. In comparison with former dry Septembers, that of 1907 on the West Coast was at least as dry, and that of 1906 on the East Coast; whilst, considering Scotland as a whole, September 1894 was a much drier month, and possibly also September 1895. Over wide areas the period from 11th or 12th to 23rd was rainless or all but so, and at Dumfries the only falls exceeding one-tenth of an inch were registered on 26th and 28th. As a rule, the greater part of the month's aggregate was accounted for by moderate falls on one or two days.

Wind force was very moderate, except on one or two of the closing days. In the extreme north, however, gales occurred about 3rd and between 22nd and 24th. But little thunder was reported.

Sunshine was as a rule slightly above the average; but deficient at Aberdeen, Deerness, and Stornoway.

#### OCTOBER.

The month was one of the mildest Octobers experienced in recent years, though it was much less mild than October 1908. There was everywhere a well-marked excess, and the general mean was  $49^{\circ}0$ , or  $2^{\circ}4$  above the normal. An outstanding feature was the absence of low night temperatures. The actual lowest was  $27^{\circ}$  at Kingussie on 14th, and in every other October since observations were organised in 1856 some lower reading than that has been recorded somewhere in Scotland. Conditions during the first week were exceptionally mild, whilst the third week was on the whole the coldest. The highest reading for the month was  $72^{\circ}$  at Crathes, on both 5th and 8th.

Towards the south-east the total rainfall for the month was fully equal to the normal; but as a rule there was a well-marked deficiency, many widely scattered stations having only half or less than half of their normal amounts. There were two very dry spells from about 3rd to 17th, and from about 21st to 30th; but outside these periods some heavy falls occurred—in south and south-west on 2nd; and in Fifeshire, the Lothians, and the Border counties on 18th. On 31st a severe rainstorm was experienced in many districts, with about 2 inches or more at Glencarron, Glenquoich, Lochbuie, Fort William, and Greenock: at Fort William and elsewhere the day was the wettest of the year.

On 31st a severe westerly gale was general, whilst, earlier, strong north-easterly winds prevailed between 12th and 14th and a northerly gale around our northern coasts on 19th and 20th. The wet and stormy weather of the 31st was accom-

panied by a thunderstorm in the evening in Stirlingshire, the Lothians, and towards the Borders.

Sunshine was rather variable in amount, but above the average in west and north-west.

### NOVEMBER.

Whilst there have been several Novembers with short periods of cold more acute than was experienced at any time during the month under consideration, there has been none in which the temperature remained so persistently below the normal. Nor has there been in any year such a contrast between October and November. The general mean of  $36^{\circ}3$ , or  $4^{\circ}6$  below the normal, was the lowest on record, and the fall in temperature, as compared with the preceding month, was nearly  $13^{\circ}$  (from  $49^{\circ}0$  to  $36^{\circ}3$ ). The temperature deficiency was almost equally well marked by day and by night, and only about one quarter of the reporting stations reached  $50^{\circ}$ . The highest reading was  $53^{\circ}$  at Dumfries and Comlongon Castle (Ruthwell) on 1st, and in every other November since observations were organised some higher reading than that has been reported. The actually coldest period of the month was from about 20th to 23rd, and the lowest reading  $10^{\circ}$  at Balmoral on 23rd.

The rainfall distribution was extremely irregular. In north and north-east the month was the wettest of the year, with more than twice the average rainfall at many places; whilst in western districts there was a general deficiency, amounting to more than 60 per cent at Fort William. Elsewhere there was, as a rule, a slight excess. Heavy falls occurred at many places on 6th—more than 1 inch at Dunrobin, Crieff, Cargen, and elsewhere; and again on 12th and 13th—Dumfries having more than 1 inch on each of these days, and Langholm more than  $2\frac{1}{2}$  inches on 13th. Thereafter heavy falls occurred in Aberdeenshire on 17th and 18th, whilst rain was general though moderate in amount from 23rd to 27th. There were in most districts many rainless or all but rainless days, and within the relatively dry area Fort William did not record as much as  $\frac{1}{2}$  inch on any one day during the month.

The weather was stormy at the beginning of the month, and the heavy rains of 6th were accompanied by a violent north-easterly gale and did considerable damage. For about ten days thereafter gales were almost continuous around our northern coasts. Snow fell at times in the Highlands and on the Borders, little elsewhere, but the falls were seldom of long duration.

Thunder here and there on 1st; in south and south-west on 7th; and at Glencarron on 9th.

Sunshine was rather above the average.

## DECEMBER.

Conditions in general were in striking contrast to those experienced in November, and during the last forty years a milder December has occurred only in 1873, 1898, and 1900. The general mean of  $41^{\circ}6$ , as compared with  $36^{\circ}3$  in November, was  $3^{\circ}5$  degrees above the normal. The first two or three days were cold, and on 28th north-westerly winds again brought rather low temperatures; but between these periods the weather was mild, and during the third and part of the fourth week exceptionally mild, with remarkably high night readings. At Leith the mean temperature of the week ending 24th was nearly  $7^{\circ}$  above the normal, and higher than that of any week since October. The extremes for the month were  $61^{\circ}$  at Logie Goldstone on 23rd and  $14^{\circ}$  at Eskdalemuir on 28th.

As regards rainfall, the amounts registered in the south and south-west of Scotland and in parts of Aberdeenshire were decidedly above the normal, by fully 50 per cent at Braemar; but over a considerable part of the country there was a moderate deficiency. Whilst days on which measurable quantities of rain were found in the gauge were as a rule numerous, many of the amounts registered were in several districts quite nominal, and at Nairn the largest daily amount recorded was only 0.19 inches. The wettest general period of the month was from about 4th to 16th, but in the north-west from 21st onwards; and falls exceeding 1 inch occurred at Stronvar on 5th and 9th; at Cargen on 9th, and at several southern stations on 16th; and at Glenquoich on 21st, 23rd, and 31st.

There was an absence of prolonged wintry weather such as may be looked for in December, and the only considerable snowfalls were during the last few days of the month.

High winds prevailed generally from 21st to 23rd, and the weather was at times stormy round our northern coasts.

Thunder was reported from only a single station—at Tillypronie on 24th.

Sunshine amounts differed little from the normal.

*General Note.*

The outstanding features of the year were, perhaps, the short spell of extreme cold in January; the heavy rains of April and August; the fine September; and the mildness of October and December. The last four months of the year may be regarded as having been, on the whole, unusually favourable to agricultural interests.

## RAINFALL RECORDS FOR 1910 IN INCHES.

	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
<b>Shetland—Lerwick</b>	6.18	3.79	2.84	5.09	2.62	1.40	1.03	3.91	2.12	1.94	8.03	5.38	44.88
<b>Orkney—Deerness</b>	4.74	3.08	1.01	8.47	2.12	1.07	1.41	3.27	1.51	1.67	4.78	8.91	32.89
<b>Caithness—Wick</b>	2.14	1.73	1.43	4.42	2.10	.94	2.49	4.02	1.81	1.70	6.77	3.42	32.47
<b>Sutherland—Dunrobin</b>	3.83	1.36	1.01	3.23	2.98	.75	3.56	4.70	1.18	1.39	6.51	4.86	33.46
<b>Bettyhill</b>	4.30	2.80	1.90	6.04	1.97	1.11	2.25	5.87	.77	3.03	4.89	3.52	37.95
<b>Ross and Cromarty—</b>													
Fortrose	2.30	.68	.82	4.45	1.87	1.22	3.85	3.49	.48	.58	3.72	1.26	24.17
Strathpeffer	4.07	1.71	1.66	3.82	2.97	1.08	3.69	5.00	.84	1.42	4.70	2.65	33.61
Glencarron	9.56	6.67	6.17	10.76	6.86	2.51	4.37	5.43	3.88	6.79	6.70	9.60	73.79
Stornoway	6.79	5.26	3.50	8.42	3.30	2.49	3.08	5.91	2.25	3.21	5.98	4.74	58.03
<b>Inverness—Inverness</b>	3.36	1.15	1.43	5.52	1.93	1.66	4.11	8.80	.82	1.72	3.67	1.78	30.94
Kingussie	4.19	2.77	1.59	8.16	1.80	1.92	3.08	8.89	.94	1.32	3.23	1.90	30.09
Drumnadrochit	4.23	1.91	1.80	6.67	2.86	2.25	3.79	3.86	.82	1.33	5.09	2.60	37.66
Kinlochquich	14.50	13.46	9.60	10.15	10.01	3.02	4.51	11.15	4.05	7.86	6.86	14.58	100.75
Fort William	13.00	10.05	4.66	8.03	4.66	1.08	4.99	7.13	2.16	4.75	3.18	5.56	69.10
<b>Nairn—Nairn (Deolies)</b>	2.93	.99	1.11	4.63	1.64	1.52	3.83	8.14	.99	1.07	1.12	1.67	27.54
<b>Elgin—Gordon Castle</b>	2.32	1.49	1.02	4.56	1.27	1.19	3.14	4.00	1.13	2.27	6.18	1.94	30.51
<b>Banff—Craigellachie</b>	2.74	1.88	1.53	3.39	.89	1.26	4.18	2.62	.30	3.35	6.91	3.11	32.16
<b>Aberdeen—New Deer</b>	2.53	2.24	1.01	2.52	2.66	1.90	2.23	3.54	1.23	2.03	6.45	3.79	32.18
Ellon	2.14	2.53	1.56	2.30	2.80	.93	2.66	3.28	1.42	1.99	6.54	3.56	31.81
Aberdeen (King's Coll.)	1.81	2.61	1.51	2.85	2.37	.68	1.45	3.51	1.13	1.69	5.4	2.39	27.74
Balmoral	4.20	3.19	2.49	3.16	1.21	1.41	4.08	4.67	1.05	3.11	4.85	4.12	37.54
<b>Kincardine—The Burn</b>	2.25	3.86	1.86	3.44	2.44	1.40	2.49	6.34	.94	2.39	4.00	5.06	35.67
<b>Forfar—Montrose</b>	1.54	2.62	1.35	2.22	2.37	1.07	2.23	4.58	1.15	1.45	3.04	2.99	26.69
Dundee	1.78	1.98	1.09	2.08	1.36	1.35	3.57	7.51	.99	1.77	2.62	2.70	28.70
Forfar	2.25	3.18	1.88	2.22	1.56	1.09	3.50	5.50	.76	1.75	2.84	4.24	30.72
Paisley	2.98	3.59	2.32	2.21	1.53	1.61	4.86	7.68	.88	2.40	3.81	4.45	37.84
<b>Perth—Perth</b>	2.92	2.22	1.49	8.83	1.08	1.27	4.66	6.80	.76	2.26	3.26	2.62	33.17
Clathick	4.81	4.75	2.95	3.53	1.28	1.51	4.89	10.68	1.15	2.82	4.65	4.67	47.64
Stronvar	9.64	9.32	5.42	7.52	2.83	3.50	7.07	10.72	1.65	3.92	4.00	9.20	75.89
Dunne	4.98	4.42	1.99	4.48	1.83	2.24	5.02	8.03	1.67	1.90	4.12	8.48	44.16
Aberfoyle	7.90	6.00	3.15	6.50	2.40	2.85	6.80	12.00	1.55	2.55	5.50	5.85	64.55
<b>Fife—St Andrews</b>	2.15	2.47	1.40	2.82	1.80	1.52	2.48	5.40	.85	1.81	2.84	2.19	27.23
<b>Kinross—Loch Leven</b>	3.55	3.12	2.18	2.92	1.58	.96	3.41	7.58	.78	2.02	3.96	2.87	34.38
<b>Clackmannan—Alloa</b>	4.16	3.47	1.75	2.80	1.04	1.45	4.90	6.79	.94	1.80	2.17	1.79	38.06
<b>Argyll—</b>													
Lochbuie (Mull)	12.04	10.46	5.24	7.67	4.77	1.36	5.50	8.64	4.13	5.76	7.02	13.85	86.84
Oban	6.73	6.93	3.03	5.10	2.71	1.72	4.25	6.91	2.17	2.98	4.27	5.00	51.80
Dalmally	11.16	10.50	4.88	7.26	4.80	1.90	5.46	8.50	4.87	3.60	3.67	11.12	72.12
Inveraray	9.76	8.96	8.48	6.85	3.58	2.35	4.44	8.28	2.71	3.44	4.66	8.70	63.21
Campbeltown	4.43	3.51	2.89	3.66	3.85	2.18	4.05	6.26	1.13	2.05	5.48	6.08	49.91
<b>Bute—Rothsay</b>	5.61	7.08	2.54	4.24	3.08	3.01	5.08	8.90	2.26	2.75	4.10	5.39	58.94
<b>Stirling—</b>													
Buchlyvie	7.19	6.50	3.04	6.13	2.88	2.69	5.01	9.28	2.05	2.52	3.73	5.26	56.23
Falkirk	5.08	3.47	1.37	4.03	1.81	1.22	4.62	6.48	.88	2.38	3.46	2.22	37.42
<b>Dumbarton—</b>													
Dumbarton	6.61	5.02	2.76	4.03	1.88	1.71	4.12	10.89	1.68	2.61	3.61	4.41	48.73
<b>Renfrew—Greenock</b>	9.01	9.14	8.21	5.19	3.28	2.93	4.55	9.69	2.17	3.53	4.79	6.81	64.81
Paisley	5.60	5.01	2.39	4.77	2.25	2.27	4.14	8.14	1.49	2.15	3.83	4.32	46.86
<b>Ayr—</b>													
Kilmarnock Ag. Col.	8.29	4.85	1.69	3.00	2.11	1.45	3.28	7.19	1.97	2.37	3.81	3.54	38.00
Ayr (Doonholm)	8.41	5.61	1.61	3.43	3.15	2.45	3.66	4.88	2.01	2.65	4.42	3.41	40.74
Maybole (Knockdon)	8.70	4.94	1.71	3.43	3.26	2.35	3.88	4.81	2.15	2.16	4.27	3.66	40.82
..	4.86	10.01	2.98	3.79	2.73	2.96	5.46	5.95	2.00	2.01	4.64	6.79	58.68
<b>Lanark—</b>													
Glasgow (Observatory)	4.11	3.53	1.84	4.43	1.88	2.11	4.56	6.64	1.49	1.87	3.09	3.84	39.19
Maudslai Castle	3.80	4.95	1.55	3.82	2.21	2.18	3.60	4.99	1.19	1.22	3.41	2.81	35.78
Lamington	3.88	6.88	4.22	3.96	3.21	1.26	4.47	5.92	.77	1.82	3.91	4.68	42.88
Leadhills	4.66	7.77	6.83	4.96	3.87	1.47	6.65	13.27	1.61	2.99	4.67	9.25	67.80
<b>Linlithgow—Boghead</b>	5.04	4.87	1.82	4.24	2.49	.37	4.00	6.46	1.11	2.17	3.15	2.62	33.54
<b>Mid-Lothian—</b>													
Edinburgh (University)	2.98	3.06	.92	3.58	1.79	1.43	3.95	4.55	.76	2.50	2.95	1.23	29.34
<b>Haddington—</b>													
North Berwick	2.05	2.82	.77	2.80	1.67	.76	2.52	4.54	1.04	3.42	2.80	1.93	34.46
Warragehame	2.04	3.05	1.08	2.47	2.21	1.10	3.23	4.25	1.07	3.45	3.12	1.63	34.46
<b>Berwick—Marchmont</b>	3.19	2.46	1.09	2.64	1.60	.85	4.05	3.89	1.09	3.44	3.55	2.04	34.46
<b>Peebles—Peebles</b>	4.04	4.19	1.65	3.44	1.81	1.22	4.86	5.03	.82	3.88	4.72	3.04	34.46
<b>Selkirk—Clovenfords</b>	2.87	3.85	2.17	3.05	2.69	2.41	5.19	3.26	.60	3.14	3.72	3.42	34.46
<b>Roxburgh—St Boswells</b>	2.48	2.64	1.13	2.50	1.32	1.31	4.44	4.86	.32	1.74	3.69	2.14	34.46
Branxholme	3.02	3.89	1.87	2.92	1.85	1.53	4.99	4.52	.37	2.22	3.69	3.04	34.46
<b>Dumfries—Dumfries</b>	2.11	5.20	3.00	2.36	2.89	1.33	5.21	7.72	.81	2.72	3.69	3.04	34.46
Drumlanrig	4.69	7.66	4.21	3.38	2.05	1.39	5.04	9.54	1.22	3.69	3.69	3.04	34.46
Moffat (Craiglands)	6.34	7.20	4.41	4.59	3.22	3.33	5.04	9.32	.81	3.69	3.69	3.04	34.46
Langholm (Twes School)	4.69	7.29	3.38	3.76	2.60	1.63	5.53	9.74	.81	3.69	3.69	3.04	34.46
<b>Kirkcudbright—Gargen</b>	3.49	7.29	4.53	4.01	2.97	2.39	5.53	9.74	.81	3.69	3.69	3.04	34.46
<b>Dalbeattie (Kirkcubbin)</b>	4.00	6.02	3.38	2.69	3.51	1.48	5.53	9.74	.81	3.69	3.69	3.04	34.46
<b>Dairy (Old Garroch)</b>	3.93	11.33	5.56	4.26	3.33	1.33	5.53	9.74	.81	3.69	3.69	3.04	34.46
<b>Wigtown—Galloway H'se</b>	3.35	5.28	3.09	3.17	3.31	3.31	5.53	9.74	.81	3.69	3.69	3.04	34.46



## AGRICULTURAL STATISTICS.

AGRICULTURAL STATISTICS.—RETURNED UPON 4TH JUNE 1910—(Compiled from the Government Returns).

TABLE NO. 1.—ACREAGE UNDER CROPS AND GRASS IN EACH COUNTY OF SCOTLAND.

COUNTIES.	Total Acreage under Crops and Grass.*	Arable Land.		Permanent Grass.		Wheat.		Barley or Oats.		Rye.		Beans.		Peas.		Tatol.		Potatoes.		Turnips or Swedes.		Mangels.		Cabbage.		Rape.		Vetches or Tares.		Small Fruit.		Clover, Grasses under Rotation.		Other crops.		Bare Fallow.	
		Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	Acre.	
1. Aberdeen . . . . .	628,676	594,393	84,342	12	18,166	190,989	290	547	294	7,008	80,437	38	193	62	421	335	287,576	248	892																		
2. Argyll . . . . .	130,649	105,410	77,433	1	1,414	17,191	439	50	2	19,097	8,725	39	62	75	29	32	23,817	245	864																		
3. Argyll . . . . .	318,087	161,097	107,500	1,022	7,715	44,083	186	1,177	14	47,150	9,707	14	1,177	48	26	217	86,912	185	116																		
4. Banff . . . . .	160,007	148,732	11,276	7,042	46,902	68	1,474	44	57,303	1,909	11	57,303	44	11	854		87,175	17	112																		
5. Berwick . . . . .	191,049	189,548	92,403	1,790	10,668	81,083	88	778	11	68,288	2,649	221	849	556	33	60	56,406	21	15																		
6. Bute . . . . .	26,805	14,168	11,618	1	21	4,979	85	62	6	4,808	1,236	20	47	818	7	19	6,610	10	332																		
7. Caithness . . . . .	111,055	85,509	39,448	..	970	32,387	87	400	8	83,841	1,646	13	42	17	7	19	34,073	2	127																		
8. Clackmannan . . . . .	15,551	9,100	6,451	295	3,222	87	400	8	8	4,076	346	18	47	7	19	4	9,616	23	62																		
9. Dumfriesshire . . . . .	40,262	26,242	23,020	588	123	7,025	9	89	49	7,639	2	87	89	49	49	49	14,489	23	62																		
10. Dumfries . . . . .	253,219	184,456	118,793	65	590	41,333	17	14	4	42,023	3,985	905	226	804	64	78	70,561	128	87																		
11. Edinburgh . . . . .	136,005	80,491	46,114	5,050	5,984	20,477	72	43	120	33,064	8,383	10	674	683	190	227	26,288	473	56																		
12. Fife . . . . .	99,817	91,640	8,268	519	10,913	24,107	475	26	11	35,365	1,871	14	862	96	13	8	39,018	16	100																		
13. Fife . . . . .	253,339	175,967	77,872	11,228	39,496	1,158	869	37	73	46,168	15,968	23	165	77	251	107	659	306	506																		
14. Forfar . . . . .	248,590	219,903	90,965	27,092	43,444	6,222	316	41	86	82,692	15,802	33	168	90	164	156	862	396	582																		
15. Haddington . . . . .	111,815	100,000	80,965	14,322	18,479	10,271	708	8	1	38,203	8,924	107	480	189	35	387	27,546	332	59																		
16. Inverness . . . . .	150,639	85,108	65,361	116	6,463	30,512	708	8	1	38,063	8,924	107	480	189	35	387	27,546	332	59																		
17. Inverurie . . . . .	119,649	107,380	12,169	874	11,147	27,952	708	8	1	38,063	8,924	107	480	189	35	387	27,546	332	59																		
18. Kinross . . . . .	84,837	39,487	12,370	63	564	6,187	85	8	1	6,710	788	10	13	4	352	28	46,564	97	22																		
19. Kirkcubright . . . . .	192,749	99,781	12,370	22	45	6,187	85	8	1	26,735	1,006	98	725	21	18	32	12,316	37	47																		
20. Lanark . . . . .	254,935	141,893	112,965	1,758	37,067	19	369	7	7	40,170	4,725	41	800	143	210	2	53,838	41	213																		
21. Leith . . . . .	57,776	36,045	1,946	4,312	6,909	66	208	10	10	14,685	2,906	4	106	228	137	60	13,127	15	86																		
22. Leith . . . . .	22,367	12,370	1,946	4,312	6,909	66	208	10	10	14,685	2,906	4	106	228	137	60	13,127	15	86																		
23. Leith . . . . .	108,093	90,029	18,064	4,424	7,280	66	208	10	10	14,685	2,906	4	106	228	137	60	13,127	15	86																		
24. Leith . . . . .	25,235	23,968	12,043	4,424	7,280	66	208	10	10	14,685	2,906	4	106	228	137	60	13,127	15	86																		
25. Leith . . . . .	40,787	23,164	13,043	5,092	10,060	64,542	507	1,672	23	84,535	14,103	27	243	27	118	2	93,774	98	883																		
26. Leith . . . . .	38,502	23,164	13,043	5,092	10,060	64,542	507	1,672	23	84,535	14,103	27	243	27	118	2	93,774	98	883																		
27. Ross & Cromarty . . . . .	140,382	108,555	51,847	1,479	10,433	20,372	504	80	18	42,316	7,086	15,628	47	87	13	455	22	42,764	213																		
28. Roxburgh . . . . .	178,374	110,508	67,566	11,592	20,372	504	80	18	18	42,316	7,086	15,628	47	87	13	455	22	42,764	213																		
29. Selkirk . . . . .	37,783	15,448	13,745	14	947	4,672	8	22	2	5,057	1,193	2,483	2	33	37	44	5	7,584	5	..																	
30. Shetland . . . . .	57,920	16,127	17,753	1,584	1,198	7,329	8	23	23	9,030	2,732	1,354	9	166	233	135	172	26,036	142																		
31. Stirling . . . . .	116,902	66,760	57,132	8	1,838	809	76	2,209	23	23,897	8,035	4,062	1	35	25	3	3,131	56	156																		
32. Strathclyde . . . . .	31,475	28,842	8,633	829	7,095	76	219	1	1	8,905	1,460	5,067	..	9	93	25	1	24,036	142																		
33. Wigton . . . . .	155,783	112,980	42,803	267	31,423	23	187	..	..	32,010	1,808	14,261	360	69	114	17	8	64,923	56																		
Total . . . . .	4,858,342	3,343,446	1,604,896	52,797	191,620	953,150	5,784	10,204	910	1,219,405	136,837	442,447	2,265	5,559	5,929	8,294	7,260	1,511,389	2,810	6,132																	

\* Not including mountain and heath land.

[illegible]

\* Average of 6 years only.

\* Average of 6 years only.

TABLE No. 3.—TOTAL PRODUCE OF BEANS, PEAS, AND POTATOES, AVERAGE AND YIELD per Acre in the Year 1909, compared with the YIELD for the Years 1908 and 1907, and the AVERAGE of the Ten Years, 1899-1908, in each COUNTY of SCOTLAND.

COUNTIES.	BEANS.						PEAS.						POTATOES.					
	Yield per acre.			Total Produce in 1909.	Average of the Ten Years 1899-1908.	Acreage in 1909.	Yield per acre.			Total Produce in 1909.	Average of the Ten Years 1899-1908.	Acreage in 1909.	Yield per acre.			Total Produce in 1909.	Average of the Ten Years 1899-1908.	
	Yield per acre.						Yield per acre.						Yield per acre.					
	1909.	1908.	1907.				1909.	1908.	1907.				1909.	1908.	1907.			1909.
Aberdeen	Qrs. 300	Bush. 23.87	Bush. 23.87	Qrs. 188	Bush. 17.52	Bush. 17.52	Qrs. 37,785	Tons. 5.10	Tons. 5.10	Qrs. 7,397	Tons. 5.10	Tons. 5.10	Qrs. 7,397	Tons. 5.10	Tons. 5.10	Qrs. 7,397	Tons. 5.10	Tons. 5.10
Argyll	192	21.23	21.23	185	21.23	21.23	23,937	9.98	9.98	9,988	9.98	9.98	23,937	9.98	9.98	9,988	9.98	9.98
Ayr	6,827	33.88	33.88	8	33.88	33.88	86,763	6.94	6.94	8,666	6.94	6.94	86,763	6.94	6.94	8,666	6.94	6.94
Bang	300	32.40	32.40	66	32.40	32.40	79	18.18	18.18	21.82	18.18	18.18	79	18.18	18.18	21.82	18.18	18.18
Berwick	2,604	58.43	58.43	7	58.43	58.43	79	27.30	27.30	27.30	27.30	27.30	79	27.30	27.30	27.30	27.30	27.30
Bute	157	53	53	8	53	53	8	21.67	21.67	21.67	21.67	21.67	8	21.67	21.67	21.67	21.67	21.67
Caithness	1,901	868	868	..	868	868	..	..	..	..	..	..	..	..	..	..	..	..
Clackmannan	222	66	66	..	66	66	..	..	..	..	..	..	..	..	..	..	..	..
Dumfries	55	16	16	8	16	16	8	37.25	37.25	37.25	37.25	37.25	8	37.25	37.25	37.25	37.25	37.25
Edinburgh	72	16	16	27	16	16	27	185	185	185	185	185	27	185	185	185	185	185
Elgin or Moray	63	15	15	617	15	15	617	32.60	32.60	32.60	32.60	32.60	617	32.60	32.60	32.60	32.60	32.60
Fife	3,472	743	743	43	743	743	43	14	14	14	14	14	43	14	14	14	14	14
Forfar	540	190	190	54	190	190	54	15	15	15	15	15	54	15	15	15	15	15
Glasgow	1,090	242	242	516	242	242	516	118	118	118	118	118	516	118	118	118	118	118
Haddington	17	7	7	210	7	7	210	25.02	25.02	25.02	25.02	25.02	210	25.02	25.02	25.02	25.02	25.02
Inverness	772	186	186	..	186	186	..	..	..	..	..	..	..	..	..	..	..	..
Kinross	20	4	4	..	4	4	..	17.00	17.00	17.00	17.00	17.00	..	17.00	17.00	17.00	17.00	17.00
Kirkcaldy	65	18	18	28	18	18	28	20.71	20.71	20.71	20.71	20.71	28	20.71	20.71	20.71	20.71	20.71
Kirkcaldy-bright	1,636	410	410	38	410	410	38	82.00	82.00	82.00	82.00	82.00	38	82.00	82.00	82.00	82.00	82.00
Leven	1,015	218	218	38	218	218	38	84.60	84.60	84.60	84.60	84.60	38	84.60	84.60	84.60	84.60	84.60
Linlithgow	12	8	8	17	8	8	17	29.89	29.89	29.89	29.89	29.89	17	29.89	29.89	29.89	29.89	29.89
Nairn	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Orkney	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Perth	6,184	1553	1553	59	1553	1553	59	27.48	27.48	27.48	27.48	27.48	59	27.48	27.48	27.48	27.48	27.48
Renfrew	1,006	197	197	69	197	197	69	17.23	17.23	17.23	17.23	17.23	69	17.23	17.23	17.23	17.23	17.23
Ross and Cromarty	48	11	11	57	11	11	57	21.81	21.81	21.81	21.81	21.81	57	21.81	21.81	21.81	21.81	21.81
Roxburgh	869	211	211	76	211	211	76	26.57	26.57	26.57	26.57	26.57	76	26.57	26.57	26.57	26.57	26.57
Selkirk	4	1	1	22	1	1	22	26.83	26.83	26.83	26.83	26.83	22	26.83	26.83	26.83	26.83	26.83
Shetland	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Strirling	13,318	2,316	2,316	31	2,316	2,316	31	33.33	33.33	33.33	33.33	33.33	31	33.33	33.33	33.33	33.33	33.33
Sutherland	741	201	201	9	201	201	9	24.00	24.00	24.00	24.00	24.00	9	24.00	24.00	24.00	24.00	24.00
Wigtown	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	42,411	9,172	9,172	2,119	9,172	9,172	2,119	28.15	28.15	28.15	28.15	28.15	2,119	28.15	28.15	28.15	28.15	28.15

\* Average for 6 years.

† Average for 7 years.

‡ Average for 9 years.

TABLE No. 4.—TOTAL PRODUCE OF TURNIPS (including SWEDS) and MANGELS, AVERAGE and YIELD per Acre in the Year 1909, compared with the YIELD for the Years 1908 and 1907, and the AVERAGE of the Ten Years, 1899-1908, in each COUNTY of SCOTLAND.

COUNTIES.	TURNIPS AND SWEDS.					MANGELS.				
	Total Produce in 1909.	Acreage in 1909.	Yield per Acre.			Total Produce in 1909.	Acreage in 1909.	Yield per Acre.		
			1909.	1908.	1907.			1909.	1908.	1907.
	Tons.	Acres.	Tons.	Tons.	Tons.	Tons.	Acres.	Tons.	Tons.	Tons.
Aberdeen . . . . .	1,443,272	86,500	16.68	17.14	18.63	178	18	9.44	19.67	19.69
Argyll . . . . .	98,580	5,656	17.08	16.43	18.93	178	18	13.58	13.15	12.60
Ayr . . . . .	124,334	6,928	17.93	21.72	18.94	708	69	13.68	13.63	8.87
Banff . . . . .	426,100	21,014	18.12	20.78	18.94	11,018	610	18.05	15.73	19.51
Berwick . . . . .	462,907	25,242	18.12	21.40	18.73	17,094	14	11.34	8.00	9.40
Bute . . . . .	235,352	13,568	17.38	19.00	16.94	4,224	190	22.14	21.11	18.09
Caithness . . . . .	338,076	15,868	19.99	21.08	16.94	1,168	10	16.30	18.29	14.92
Clackmannan . . . . .	10,217	619	12.58	12.57	17.09	15.31	8	10.00	10.00	6.00
Dumfriesshire . . . . .	30,486	1,898	16.08	16.81	17.47	374	22	17.00	20.89	10.72
Dumfries . . . . .	253,662	10,860	18.74	16.74	12.96	6,009	333	18.05	20.92	15.64
Edinburgh . . . . .	204,693	10,868	19.74	20.45	16.87	1,805	85	18.88	23.74	19.01
Elgin or Moray . . . . .	803,015	14,906	20.37	22.29	17.66	17,830	12	21.00	17.00	14.00
Fife . . . . .	432,460	22,692	15.09	18.85	14.14	457	36	11.24	9.44	12.67
Forfar . . . . .	898,757	32,153	19.30	22.86	16.55	596	27	22.07	28.85	12.81
Glasgow . . . . .	17,690	10,367	20.23	22.43	10.07	3,431	177	19.37	21.75	20.09
Highland . . . . .	210,030	16,671	12.60	18.17	17.89	176	14	12.57	20.00	19.14
Inverness . . . . .	82,511	6,415	13.46	14.29	12.85	10	1	10.00	..	8.33
Kirkcaldy . . . . .	191,830	11,436	16.75	18.16	14.16	2,613	121	20.77	23.56	17.31
Kirkcubright . . . . .	187,552	9,621	17.39	18.33	12.53	804	45	6.76	7.83	18.97
Leith . . . . .	68,147	3,855	20.31	21.89	16.64	251	13	19.31	19.44	7.00
Midlothian . . . . .	60,823	4,106	14.32	16.81	15.81	595	35	15.00	17.00	16.34
Orkney . . . . .	140,170	14,387	9.31	10.62	9.56	8	1	..	..	..
Perth . . . . .	72,585	3,689	19.77	21.72	17.38	16	1	16.00	22.00	19.33
Perthshire . . . . .	480,758	26,867	18.27	20.26	17.92	338	22	15.36	18.00	21.78
Perth and Kinross . . . . .	85,809	2,118	10.21	17.85	13.01	533	40	14.45	14.59	12.85
Perthshire . . . . .	271,059	15,303	17.71	18.26	5.99	867	55	15.76	18.47	9.08
Perthshire . . . . .	363,339	20,047	18.12	17.42	14.38	712	45	15.32	15.42	12.42
Perthshire . . . . .	42,288	2,436	17.36	18.00	12.00	672	42	16.00	..	..
Perthshire . . . . .	15,116	1,500	10.08	13.48	14.03	..	..	..	..	..
Perthshire . . . . .	97,550	4,043	24.11	22.65	16.39	224	12	13.67	25.08	16.37
Perthshire . . . . .	51,064	3,001	17.22	17.70	16.98	12	1	12.00	23.81	16.37
Perthshire . . . . .	226,543	14,803	15.33	20.71	13.78	6,566	398	16.50	23.81	16.37
TOTAL . . . . .	7,630,676	440,506	17.30	18.86	14.66	42,908	2,444	17.56	21.47	15.14

† Average of 6 years only.

† Average of 7 years only.

† Average of 8 years only.

§ Crop failed.

TABLE No. 5.—TOTAL PRODUCE OF HAY from Clover, Sainfoin, and Grasses under Rotation, also Total from Permanent Pasture, Acreage, and Yield per Acre in the Year 1903, compared with the Yield for the Years 1908 and 1907, and the AVERAGE of the Ten Years, 1898-1907, in each COUNTY of SCOTLAND.

COUNTIES.	FROM CLOVER, SAINFOIN, AND GRASSES.					FROM PERMANENT PASTURE.				
	Total Produce in 1909.	Acreage in 1909.	Yield per Acre.			Total Produce in 1909.	Acreage in 1909.	Yield per Acre.		
			1909.	1908.	1907.			1909.	1908.	1907.
	Tons.	Acrea.	Owt.	Owt.	Owt.	Tons.	Acrea.	Owt.	Owt.	Owt.
Aberdeen . . . . .	70,661	48,700	28.98	27.72	27.59	1,674	1,633	20.50	18.09	20.25
Argyll . . . . .	15,054	10,788	27.91	30.59	34.01	20,798	16,889	31.83	34.01	38.04
Banff . . . . .	15,054	33,031	31.32	34.14	35.10	26,788	10,144	42.62	43.82	44.84
Berwick . . . . .	15,306	10,077	30.88	22.60	28.36	36.91	541	18.11	12.41	15.81
Bute . . . . .	10,913	10,028	33.78	30.72	40.98	33.71	1,680	25.03	27.12	32.38
Cathness . . . . .	3,995	2,215	36.07	36.97	38.28	33.71	2,044	37.97	36.99	37.32
Clackmannan . . . . .	8,442	9,340	18.08	17.45	21.49	18.01	1,044	11.65	11.19	15.97
Dumfriesshire . . . . .	9,495	1,908	36.63	41.45	44.86	33.68	1,187	34.47	34.87	35.74
Dumfries . . . . .	10,812	6,587	32.83	34.52	36.32	86.71	2,139	36.20	33.46	35.81
Dunbarton . . . . .	18,481	18,850	20.14	23.87	25.04	25,382	19,572	25.89	34.01	30.99
Edinburgh . . . . .	40,850	18,175	62.01	56.23	62.42	4,616	2,558	34.73	33.09	31.36
Elgin or Moray . . . . .	9,704	6,609	34.60	37.21	32.60	479	589	24.61	20.35	24.18
Fife . . . . .	41,046	27,119	32.07	33.03	40.95	33.29	6,206	25.92	28.31	36.68
Forfar . . . . .	38,363	21,149	36.27	36.00	34.72	1,879	1,636	22.96	21.24	24.20
Haddington . . . . .	31,663	11,043	57.85	56.10	61.68	2,339	1,409	33.20	32.74	34.54
Inverness . . . . .	13,203	10,726	24.62	21.86	30.04	22.39	5,435	17.20	17.95	24.72
Kinross . . . . .	16,029	13,161	24.36	25.18	28.00	37.44	654	12.74	13.65	15.69
Kirkcaldy . . . . .	4,623	2,927	31.59	32.75	38.98	32.03	1,026	12.70	13.62	15.69
Kirkcubright . . . . .	11,697	9,778	23.92	23.35	31.04	17,708	12,911	30.71	33.22	39.18
Leamington . . . . .	6,205	3,748	34.55	36.82	36.07	15,069	9,079	33.19	34.42	31.84
Leithgow . . . . .	25,265	7,875	69.09	58.17	62.44	1,764	1,058	33.34	31.11	33.58
Nairn . . . . .	1,418	1,820	16.66	16.08	22.39	19	29	13.41	14.88	17.52
Orkney . . . . .	6,606	8,105	16.46	20.03	19.09	19.63	257	12.70	10.28	8.93
Perth . . . . .	4,461	2,505	35.03	37.47	35.62	33.62	1,694	30.64	31.83	30.17
Perthshire . . . . .	31,761	27,438	23.93	23.85	30.87	15,265	14,794	30.64	23.98	31.27
Renfrew . . . . .	32,598	34,175	38.68	38.46	34.99	38.21	5,044	35.31	36.45	36.09
Ross and Cromarty . . . . .	12,900	13,223	32.84	32.92	32.92	2,380	2,788	17.02	13.40	6.82
Roxburgh . . . . .	19,143	8,983	22.07	22.42	22.42	7,223	5,658	25.55	25.04	32.14
Selkirk . . . . .	1,381	984	22.66	22.42	22.42	2,403	1,942	24.75	27.00	30.00
Shetland . . . . .	1,182	1,189	22.75	24.09	24.09	2,403	1,942	24.75	27.00	30.00
Shetland . . . . .	1,182	1,189	22.75	24.09	24.09	2,403	1,942	24.75	27.00	30.00
Stirling . . . . .	20,946	13,154	32.08	31.14	31.14	1,387	1,676	16.55	15.86	14.45
Sutherland . . . . .	8,790	4,119	18.45	17.92	17.92	9,365	6,408	30.79	35.99	36.84
Wigtown . . . . .	7,704	5,136	30.00	33.06	37.08	1,318	1,691	16.69	14.77	14.67
Total . . . . .	652,359	415,990	31.93	31.91	34.03	216,585	*152,965	28.92	30.82	30.23

\* Exclusive of 694 acres in the county of Orkney, originally returned as "Grass for Hay," but subsequently stated to have been used for grazing.

TABLE No. 6.—NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS IN EACH COUNTY OF SCOTLAND AS RETURNED ON JUNE 4, 1910.

COUNTIES.	HORSES (including Ponies).				CATTLE.				SHEEP.			Pigs.	
	Used solely for Agricul- ture, &c.*	Unbroken Horses.		Total.	Cows and Heifers in Milk.	Cows and Heifers in Calv.	Other Cattle.		Total.	1 Year Old and above.	Under 1 Year.		Total.
		1 Year and above.	Under 1 Year.				2 Years and above.	Under 2 Years.					
1. Aberdeen	23,438	5,663	2,317	31,418	97,998	4,146	41,986	81,954	166,084	124,890	104,088	228,778	11,208
2. Argyll	4,611	1,800	544	6,455	17,898	3,434	11,176	24,048	56,556	657,914	278,453	886,987	4,775
3. Ar.	7,612	1,453	616	9,411	43,446	10,004	12,581	86,195	102,476	214,798	140,892	355,660	13,301
4. Banff	6,936	1,774	740	9,450	11,113	1,215	7,331	24,669	44,227	44,227	28,891	68,342	3,093
5. Berwick	4,379	681	131	5,041	6,262	401	5,038	9,151	17,216	161,423	162,766	324,189	3,411
6. Bute	965	186	92	1,244	3,024	529	4,184	1,837	9,054	28,364	14,861	43,225	684
7. Caithness	4,383	789	436	5,598	6,480	826	2,471	11,736	21,513	76,864	54,527	131,391	1,432
8. Clackmannan	518	134	54	701	1,206	194	880	1,998	3,623	8,764	6,413	15,177	823
9. Dumbarton	1,441	297	118	1,856	6,596	1,544	2,114	3,506	13,759	43,116	26,891	69,977	1,077
10. Dundee	5,878	1,379	489	7,746	17,076	4,553	11,743	28,988	62,359	329,482	227,506	556,988	8,546
11. Edinburgh	8,932	534	149	4,605	10,700	854	2,945	4,174	18,603	107,945	78,910	186,855	10,750
12. Elgin	3,802	834	390	4,956	5,835	602	4,374	12,898	23,204	34,317	20,489	54,806	2,305
13. Forfar	2,019	612	182	10,624	10,684	1,730	15,155	18,020	45,589	56,296	50,785	107,075	5,943
14. Fife	8,623	1,148	486	10,207	10,584	1,949	19,263	18,525	49,361	97,334	68,617	165,951	1,026
15. Haddington	2,930	995	116	9,691	1,757	904	5,102	2,784	9,847	72,281	55,170	127,451	1,006
16. Inverness	7,264	1,328	845	9,437	18,175	8,305	6,162	22,992	50,034	366,650	182,243	548,902	2,028
17. Kinross	4,199	715	392	5,176	6,101	967	5,910	11,505	24,383	26,816	21,680	48,396	2,286
18. Kirkcubright	835	230	78	1,191	1,260	196	1,097	4,029	6,579	17,836	15,449	33,335	650
19. Kirkcaldy	4,966	1,154	890	6,660	14,393	3,680	11,487	22,034	52,044	237,142	156,075	993,817	9,530
20. Leith	9,769	1,499	524	8,722	29,820	8,642	10,555	21,891	70,383	151,066	96,100	247,166	7,197
21. Leithgow	1,708	450	170	2,328	4,024	814	2,945	3,712	11,437	14,549	7,056	21,706	1,291
22. Leith	1,069	245	81	1,376	1,726	241	737	3,326	6,030	13,193	5,476	18,669	1,502
23. Leith	5,187	967	558	6,712	8,421	1,409	8,653	16,999	29,582	117,923	17,519	35,442	2,100
24. Leith	1,141	161	51	1,354	1,606	361	1,500	3,452	6,919	116,473	87,226	203,089	379
25. Perth	10,400	2,264	660	13,324	14,898	1,976	17,133	35,918	69,925	424,555	244,897	669,452	6,802
26. Perth	2,643	523	150	3,316	12,975	3,841	2,631	5,921	25,368	16,753	17,658	43,010	1,358
27. Perth	6,058	1,502	692	8,152	15,903	2,141	7,370	18,590	48,409	180,851	96,757	277,608	3,855
28. Perth and Comartry	8,755	411	132	4,268	4,141	522	5,195	8,191	18,409	287,316	947,893	535,509	7,729
29. Perth	685	48	15	648	1,157	126	388	1,742	3,413	105,086	81,641	186,727	410
30. Perth	3,974	1,824	1,051	5,749	6,084	1,516	3,894	5,325	16,219	97,375	56,597	153,972	1,226
31. Perth	8,397	824	263	4,484	8,662	2,655	7,008	10,820	29,575	75,908	40,368	125,176	1,926
32. Perth	2,152	283	124	2,559	4,383	947	1,535	4,750	11,615	138,938	71,571	210,509	635
33. Perth	4,258	1,262	451	6,001	23,929	2,028	9,780	16,572	62,259	72,149	47,271	119,420	13,448
Total	186,816	33,626	13,625	203,567	364,587	66,231	242,640	497,295	1,170,759	4,322,965	2,821,681	7,144,046	193,947

\* Including Mares kept for breeding.

TABLE NO. 7.—QUANTITIES AND VALUES OF CORN, MEAT, FOOD PRODUCTS, in the Year 1910, with the

[From Trade and

	Quantities.			Values.		
	1908.	1909.	1910.	1908.	1909.	1910.
<b>ANIMALS, LIVING:—</b>	No.	No.	No.	£	£	£
Cattle . . . . .	383,129	321,340	219,561	6,549,285	5,566,105	4,027,918
Sheep and lambs . . . . .	78,900	8,181	427	122,525	12,028	754
Swine . . . . .	..	..	..	..	..	..
Total value . . . . .	..	..	..	6,671,810	5,579,028	4,028,672
<b>GRAIN, FLOUR, &amp;c.:—</b>	Cwt.	Cwt.	Cwt.	£	£	£
Wheat . . . . .	91,181,305	97,854,425	105,222,688	38,295,327	45,272,181	44,160,884
Wheat meal and flour . . . . .	12,969,855	11,052,540	9,960,491	7,075,281	6,870,480	5,510,905
Barley . . . . .	18,187,200	21,556,470	18,281,800	6,113,945	7,143,849	5,396,676
Oats . . . . .	14,269,250	17,835,998	17,494,814	4,162,576	5,437,857	4,823,641
Peas . . . . .	1,060,999	1,314,149	1,591,111	538,313	603,054	718,740
Beans . . . . .	1,043,997	2,171,280	849,202	373,018	757,600	811,784
Maize or Indian corn . . . . .	33,341,000	39,382,605	37,021,192	10,388,061	12,122,512	10,394,346
Maize-meal . . . . .	450,410	334,140	461,624	159,484	127,751	158,958
Oatmeal . . . . .	500,698	583,125	775,038	416,134	465,118	582,225
Offals of corn and grain, } including rice-meal	3,904,536	3,344,080	4,371,786	940,382	782,623	1,020,570
Rice, exclusive of rice- meal—						
From British East Indies	2,672,170	2,524,082	3,409,294	1,217,516	1,089,176	1,408,244
From other countries . . . . .	2,983,516	2,488,795	2,723,411	1,377,262	1,131,779	1,241,094
Other kinds of grain & corn	1,472,572	1,431,225	1,473,018	613,962	587,025	542,548
Other kinds of meal and } flour	145,609	195,071	287,279	68,317	90,519	102,335
Total value . . . . .	..	..	..	71,739,528	81,981,774	76,268,895
<b>MEAT:—</b>	Cwt.	Cwt.	Cwt.	£	£	£
Beef, salted . . . . .	114,742	110,015	87,636	215,225	195,238	178,924
* " fresh and refrigerated	5,611,441	6,140,522	7,015,498	10,276,957	10,293,406	11,745,222
* Mutton, fresh " . . . . .	4,385,771	4,761,388	5,406,026	8,140,029	7,889,195	9,308,004
Bacon . . . . .	5,685,742	4,625,463	3,863,389	14,480,579	13,801,665	13,391,274
Hams . . . . .	1,225,227	1,129,029	719,126	3,084,660	3,112,896	2,526,585
Pork, salted (not bacon or } hams)	270,608	258,539	227,191	328,351	312,362	304,163
* Pork, fresh and refrigerated	572,222	428,444	479,907	1,381,435	1,023,322	1,196,797
* Meat, unenumerated, fresh . . . . .	697,814	693,801	707,118	1,188,384	1,276,009	1,310,739
" " salted . . . . .	78,978	55,601	70,541	107,967	98,645	102,573
Meat, preserved, otherwise } than by salting	465,638	609,984	742,334	1,383,555	2,333,413	2,514,068
* Rabbits (dead) . . . . .	550,928	579,856	664,190	685,448	727,954	837,122
Total of dead meat . . . . .	19,654,111	19,398,092	19,933,451	41,723,639	41,015,605	43,905,471
<b>DAIRY PRODUCE:—</b>	Cwt.	Cwt.	Cwt.	£	£	£
Butter . . . . .	4,310,821	4,062,812	4,325,539	24,080,912	22,424,062	24,498,450
Margarine . . . . .	813,447	863,292	1,120,616	2,081,245	2,243,737	2,935,244
Cheese . . . . .	2,906,086	2,390,090	2,456,351	6,684,203	6,329,868	6,809,854
Total . . . . .	7,380,354	7,321,194	7,902,506	32,846,360	31,498,562	34,238,548

In the Official Returns from 1909 the figures are given as "Fresh," "Chilled," and "Frozen."

AND ARTICLES AFFECTING AGRICULTURE, imported into the United Kingdom  
Corresponding Figures for 1908 and 1909.

*Navigation Returns.*]

	Quantities.			Values.		
	1908.	1909.	1910.	1908.	1909.	1910.
POULTRY (alive or dead) . . . . .	..	..	..	£ 934,679	£ 920,097	£ 821,810
GAME (alive or dead) . . . . .	..	..	..	118,206	108,098	123,612
Eggs . . . . .	Gt. Hunds. 18,210,070	Gt. Hunds. 17,710,491	Gt. Hunds. 18,344,187	7,188,112	7,238,932	7,296,145
Total value . . . . .	..	..	..	8,236,987	8,262,727	8,241,007
FRUIT, VEGETABLES, &c. :—	Cwt.	Cwt.	Cwt.	£	£	£
Apples . . . . .	3,378,579	3,129,546	3,242,305	2,079,703	2,007,911	2,189,809
Cherries . . . . .	100,479	186,464	65,485	284,883	210,079	121,691
Plums . . . . .	402,881	485,558	387,039	427,212	474,550	484,008
Pears . . . . .	523,029	569,535	510,591	515,924	504,475	528,023
Grapes . . . . .	673,670	490,003	673,829	728,022	508,111	679,917
Oranges . . . . .	5,604,041	6,202,270	5,469,958	2,269,731	2,522,491	2,267,707
Lemons . . . . .	1,045,009	1,037,989	990,077	471,613	475,967	452,115
Unenumerated . . . . .	436,947	464,212	470,148	291,325	306,081	302,425
Onions . . . . .	Bushels. 7,890,109	Bushels. 7,470,772	Bushels. 8,124,815	993,669	1,213,518	1,042,674
Potatoes . . . . .	Cwt. 7,039,328	Cwt. 4,281,078	Cwt. 8,898,989	1,967,216	1,407,875	1,201,611
Vegetables, unenumerated } (raw) . . . . .	..	..	..	871,209	402,744	420,142
Hops . . . . .	279,926	140,777	176,781	767,045	476,436	788,056
Total value . . . . .	..	..	..	11,117,502	10,510,788	10,427,678
OTHER ARTICLES :—	Cwt.	Cwt.	Cwt.	£	£	£
Lard . . . . .	1,987,491	1,780,580	1,452,493	4,407,410	4,358,026	4,520,074
Wool, sheep and lambs' } Wood and timber— } Hewn (pit-props or pit- } wood) . . . . .	Lb. 719,044,881	Lb. 803,432,548	Lb. 798,672,886	27,997,328	31,886,375	33,841,528
Sawn or split, planed or } dressed . . . . .	Loads. 3,041,241	Loads. 2,627,638	Loads. 2,820,576	3,579,855	2,929,640	3,186,828
Staves . . . . .	5,488,480	5,721,901	5,998,629	14,521,127	15,469,624	17,009,189
Oilseed-cake . . . . .	Tons. 382,485	Tons. 328,763	Tons. 315,630	2,113,542	2,130,394	2,105,889
Seeds— } Clover and grass . . . . .	Cwt. 810,826	Cwt. 819,001	Cwt. 828,976	690,323	727,605	664,158
Cotton . . . . .	Tons. 614,923	Tons. 600,377	Tons. 690,171	4,150,459	4,152,087	4,865,863
Flax or linseed . . . . .	Qrs. 2,007,195	Qrs. 1,697,428	Qrs. 1,439,485	4,807,014	3,762,191	4,529,974
Rape . . . . .	147,490	139,708	251,824	813,520	261,286	448,580
*Soya beans . . . . .	..	..	421,581	..	..	3,047,048
Bones (whether burnt or } not) . . . . .	Tons. 41,412	Tons. 39,081	Tons. 44,505	169,340	175,672	201,589
Guano . . . . .	34,417	20,821	20,395	153,599	89,147	107,853
Basic slag . . . . .	9,992	15,286	16,588	15,967	25,927	26,985
Nitrate of soda (cubic nitre) . . . . .	145,724	90,207	126,498	1,455,000	666,399	1,191,197
Phosphate of lime and rock } phosphate . . . . .	529,185	451,807	455,558	916,422	747,967	725,486
Cotton, raw . . . . .	Cwt. 13,999,078	Cwt. 19,842,513	Cwt. 17,614,860	55,884,893	60,335,449	53,713,399
Hemp . . . . .	Tons. 117,426	Tons. 114,799	Tons. 129,728	3,665,371	3,794,736	3,124,784
Flax . . . . .	95,322	90,660	88,342	3,418,437	3,434,379	3,656,418
Hides untanned— } Dry . . . . .	Cwt. 857,375	Cwt. 453,993	Cwt. 516,341	1,315,139	7,692,094	1,635,371
Wet . . . . .	681,056	737,603	766,335	1,336,535	2,136,974	2,416,596
Petroleum . . . . .	Gallons. 843,618,048	Gallons. 858,102,807	Gallons. 843,562,130	5,638,211	6,121,208	5,768,597

Not shown separately in 1908 and 1909.



TABLE NO. 8.—QUANTITY AND VALUE OF CORN, &amp;c., imported into the United Kingdom in the undermentioned Years.

[From Trade and Navigation Returns.]

	Quantities.			Values.		
	1908.	1909.	1910.	1908.	1909.	1910.
	Cwt.	Cwt.	Cwt.	£	£	£
Wheat from—						
Russia . . . . .	5,147,110	17,844,840	28,941,600	2,295,636	8,179,885	12,021,407
Germany . . . . .	90,000	864,200	98,100	35,283	162,628	42,212
Turkey . . . . .	948,100	49,800	134,800	148,890	18,601	47,005
Roumania . . . . .	1,280,000	527,200	939,200	572,973	250,481	374,370
United States . . . . .	26,768,900	15,604,100	10,948,900	10,877,170	6,968,106	4,767,179
Chile . . . . .	2,210,700	1,870,200	688,500	904,588	762,015	248,021
Argentine Republic . . . . .	31,691,400	20,037,800	15,131,800	13,116,365	9,284,501	6,185,090
British East Indies . . . . .	2,948,900	14,638,200	17,916,738	1,297,138	6,944,460	7,408,540
Australia . . . . .	5,518,200	9,700,100	13,117,500	2,421,286	4,683,770	5,686,576
New Zealand . . . . .		701,400	680,600		331,297	239,526
Canada . . . . .	15,796,695	16,615,745	16,449,200	6,484,399	7,604,262	7,059,659
Other countries . . . . .	831,200	206,340	281,200	141,599	98,119	111,290
Total . . . . .	91,131,205	97,864,425	105,222,658	38,295,327	45,272,131	44,160,884
Wheat, meal, and flour, from—						
Germany . . . . .	387,430	586,660	587,900	209,149	320,963	308,955
Belgium . . . . .	68,100	64,900	65,250	34,712	37,365	35,308
France . . . . .	359,500	534,680	438,900	171,705	292,909	213,207
Austria-Hungary . . . . .	250,804	107,698	124,207	101,498	96,198	96,768
United States . . . . .	9,956,889	6,920,011	5,117,880	5,442,642	3,968,233	2,881,813
Argentine Republic . . . . .	113,110	85,400	101,400	50,655	37,479	36,888
Australia . . . . .	230,800	621,000	407,800	120,780	320,546	224,993
Canada . . . . .	1,529,122	2,059,400	2,790,101	817,764	1,188,454	1,569,020
Other countries . . . . .	78,160	163,791	327,553	36,346	88,443	148,953
Total . . . . .	12,969,855	11,052,540	9,960,491	7,075,281	6,370,480	5,510,905
Barley . . . . .	18,137,200	21,556,470	18,281,800	6,113,945	7,143,849	5,396,676
Oats . . . . .	14,269,250	17,885,998	17,494,514	4,162,576	5,437,857	4,823,041
Peas . . . . .	1,060,999	1,814,149	1,591,111	538,513	603,054	718,740
Beans . . . . .	1,043,997	2,171,230	849,202	373,018	767,600	311,794
Indian corn or maize . . . . .	33,841,000	39,362,605	37,021,192	10,888,061	12,122,812	10,294,346
Indian corn meal . . . . .	450,410	334,140	461,624	159,484	127,761	158,953
Oatmeal . . . . .	500,693	583,125	775,033	416,134	465,118	582,225
Offals of corn and grain, including rice-meal . . . . .	3,904,536	3,344,080	4,371,786	940,332	782,623	1,020,570
Rice, exclusive of rice-meal—						
From Brit. East Indies . . . . .	2,672,170	2,524,032	3,409,294	1,217,516	1,089,176	1,403,244
From other countries . . . . .	2,983,576	2,488,795	2,728,411	1,377,262	1,131,779	1,241,094
Other kinds of grain and corn . . . . .	1,472,572	1,431,225	1,473,018	613,962	587,025	542,548
Other kinds of meal and flour . . . . .	145,609	195,071	267,279	68,317	90,519	102,335
Total of corn, &c. . . . .	..	..	..	71,739,526	81,981,774	76,268,395

TABLE NO. 9.—RETURN OF THE AVERAGE PRICES OF WOOL in the Years 1908 and 1909.

Years.	Australian.	South African.	English Fleeces.
	Per lb.	Per lb.	Per lb.
	s. d.	s. d.	s. d.
1908 . . . . .	0 10	0 8½	0 8 to 0 12½
1909 . . . . .	0 10½	0 8½	0 8½ to 0 13½

TABLE NO. 10.—QUANTITY AND VALUE OF DEAD MEAT imported into the United Kingdom in the undermentioned Years.

	Quantities.			Values.		
	1908.	1909.	1910.	1908.	1909.	1910.
<b>BACON, from—</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>£</b>	<b>£</b>	<b>£</b>
Denmark . . . . .	2,049,513	1,809,745	1,794,416	5,680,923	5,801,332	6,341,726
United States . . . .	2,858,312	2,189,053	1,906,031	6,726,084	6,087,473	4,453,293
Canada . . . . .	687,759	443,386	411,035	1,827,636	1,364,867	1,449,637
Other countries . . . .	90,158	183,279	350,117	245,936	578,453	1,146,618
<b>Total . . . . .</b>	<b>5,685,743</b>	<b>4,625,463</b>	<b>3,863,389</b>	<b>14,480,579</b>	<b>18,801,665</b>	<b>18,991,274</b>
<b>BEEF (salted), from—</b>						
United States . . . .	103,435	104,741	79,822	200,070	188,775	162,210
Other countries . . . .	11,307	5,274	7,814	15,155	7,463	11,714
<b>Total . . . . .</b>	<b>114,742</b>	<b>110,015</b>	<b>87,636</b>	<b>215,225</b>	<b>196,238</b>	<b>173,924</b>
<b>*BEEF (fresh and refrigerated)</b>						
United States . . . .	1,446,904	856,216	477,147	3,293,184	1,949,336	1,070,299
Uruguay . . . . .	114,723	127,924	142,269	180,405	175,149	202,645
Argentine Republic . .	3,570,974	4,303,155	4,806,869	6,073,831	6,733,673	8,256,934
Australia . . . . .	112,533	411,577	836,695	169,603	590,336	1,289,569
New Zealand . . . . .	347,873	454,368	532,830	541,600	660,319	797,585
Denmark . . . . .	..	54,773	42,203	..	131,926	107,750
Other countries . . . .	18,295	27,500	41,305	38,080	52,767	70,440
<b>Total . . . . .</b>	<b>5,611,441</b>	<b>6,140,522</b>	<b>7,015,498</b>	<b>10,276,957</b>	<b>10,298,406</b>	<b>11,745,222</b>
<b>HAMS, from—</b>						
United States . . . .	1,169,601	1,073,569	665,775	2,936,960	2,952,034	2,329,516
Canada . . . . .	52,657	53,593	37,621	138,472	154,222	138,232
Other countries . . . .	2,969	1,867	15,730	9,237	6,590	58,337
<b>Total . . . . .</b>	<b>1,225,227</b>	<b>1,129,029</b>	<b>719,126</b>	<b>3,084,669</b>	<b>3,112,896</b>	<b>2,526,585</b>
<b>†MEAT (unenumerated, fresh and refrigerated), from—</b>						
Netherlands . . . . .	249,945	273,411	247,537	558,360	680,183	505,385
United States . . . .	154,985	142,173	115,784	232,752	248,254	224,563
Argentine Republic . .	..	252,126	281,364	..	284,783	347,242
Other countries . . . .	372,862	86,687	132,969	505,779	181,484	246,122
<b>Total . . . . .</b>	<b>771,792</b>	<b>754,402</b>	<b>777,654</b>	<b>1,296,891</b>	<b>1,374,654</b>	<b>1,113,312</b>
<b>MEAT, preserved otherwise than by salting—</b>						
Beef . . . . .	271,781	338,022	454,240	1,154,358	1,351,694	1,486,055
Mutton . . . . .	65,106	125,029	150,292	155,419	301,613	359,702
Other sorts . . . . .	128,751	151,933	138,302	573,778	380,201	668,306
<b>Total . . . . .</b>	<b>465,638</b>	<b>609,984</b>	<b>742,834</b>	<b>1,883,555</b>	<b>2,333,413</b>	<b>2,514,063</b>
<b>*MUTTON (fresh and refrigerated)—</b>						
Netherlands . . . . .	267,222	185,622	139,699	641,135	451,194	340,189
Uruguay . . . . .	58,105	65,330	90,485	92,588	73,573	141,667
Argentine Republic . .	1,566,719	1,437,605	1,419,633	2,512,656	2,024,839	2,332,454
Australia . . . . .	636,034	949,753	1,526,399	1,135,259	1,374,212	2,533,635
New Zealand . . . . .	1,787,606	1,073,023	2,104,173	3,452,584	3,499,053	4,235,173
Other countries . . . .	130,088	151,452	126,617	245,857	211,274	226,386
<b>Total . . . . .</b>	<b>4,385,771</b>	<b>4,761,838</b>	<b>5,406,026</b>	<b>8,140,029</b>	<b>7,839,195</b>	<b>9,808,004</b>
<b>PORK (salted, not Bacon or Hams), from—</b>						
United States . . . .	31,119	55,639	38,366	139,173	118,555	101,645
Other countries . . . .	189,439	202,900	188,325	139,073	199,307	202,623
<b>Total . . . . .</b>	<b>270,608</b>	<b>258,539</b>	<b>227,191</b>	<b>328,351</b>	<b>312,362</b>	<b>304,168</b>
<b>*PORK (fresh and refrigerated)—</b>						
Netherlands . . . . .	384,004	373,876	366,197	912,609	905,741	900,116
Belgium . . . . .	23,123	10,215	8,343	37,602	35,359	34,353
United States . . . .	143,337	7,255	1,044	309,347	15,364	2,339
Other countries . . . .	21,258	32,598	108,313	51,377	76,323	30,732
<b>Total . . . . .</b>	<b>572,222</b>	<b>423,444</b>	<b>473,907</b>	<b>1,331,435</b>	<b>1,028,323</b>	<b>1,168,797</b>
<b>*RABBITS (dead), from—</b>						
Belgium . . . . .	43,633	44,033	47,761	130,958	132,113	133,733
Australia . . . . .	394,193	463,994	513,373	411,326	506,373	577,343
New Zealand . . . . .	93,325	52,012	90,339	93,641	39,333	37,447
Other countries . . . .	16,272	14,812	12,361	37,443	22,337	37,404
<b>Total . . . . .</b>	<b>550,223</b>	<b>579,856</b>	<b>664,190</b>	<b>683,433</b>	<b>707,963</b>	<b>837,133</b>
<b>Total of dead meat</b>	<b>10,654,111</b>	<b>10,398,092</b>	<b>10,965,401</b>	<b>41,723,529</b>	<b>41,076,065</b>	<b>43,605,471</b>

\* In the Official Returns from 1909 the imports are shown separately as "Frozen," "Chilled," and "Frozen."

† In the Official Returns from 1905 the imports are shown separately as "Frozen," "Chilled," "Frozen," and "Salted."

TABLE NO. 11.—QUANTITIES AND VALUES OF BUTTER, MARGARINE, CHEESE, AND EGGS imported into the United Kingdom in each Year from 1908 to 1910 inclusive.

[From Trade and Navigation Returns.]

	Quantities.			Values.		
	1908.	1909.	1910.	1908.	1909.	1910.
<b>BUTTER from—</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>£</b>	<b>£</b>	<b>£</b>
Russia . .	651,036	601,712	584,040	3,455,914	3,001,764	3,045,722
Sweden . .	284,364	312,142	345,684	1,694,964	1,801,095	2,022,398
Denmark . .	1,800,169	1,764,027	1,726,091	10,658,395	10,283,370	10,208,192
Germany . .	2,698	2,944	3,481	14,199	14,298	17,716
Netherlands . .	244,346	148,567	154,537	1,299,472	797,162	843,318
France . .	394,365	413,306	361,249	2,264,229	2,318,887	2,116,072
United States . .	44,353	698	756	239,417	3,575	4,075
Victoria . .	192,901	180,167	307,929	1,096,699	923,804	1,622,529
New S. Wales . .	138,953	132,708	217,780	779,293	664,959	1,181,953
Queensland . .	67,710	71,744	113,384	369,990	354,790	612,080
New Zealand . .	221,395	278,531	362,674	1,250,211	1,472,219	2,001,393
Canada . .	43,084	22,522	16,805	239,748	120,083	90,797
Other countries	125,467	133,699	131,129	708,881	718,956	727,265
<b>Total .</b>	<b>4,210,821</b>	<b>4,062,812</b>	<b>4,325,539</b>	<b>24,080,912</b>	<b>22,424,962</b>	<b>24,493,450</b>
<b>MARGARINE from—</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>£</b>	<b>£</b>	<b>£</b>
Norway . .	4,866	4,529	5,474	11,555	10,511	13,500
Netherlands . .	764,692	818,901	1,069,362	1,944,745	2,113,085	2,782,636
France . .	27,111	23,369	32,283	93,076	79,007	106,809
Other countries	16,778	21,493	13,492	31,869	41,184	32,299
<b>Total .</b>	<b>813,447</b>	<b>868,292</b>	<b>1,120,616</b>	<b>2,081,245</b>	<b>2,243,737</b>	<b>2,935,244</b>
<b>CHEESE from—</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>£</b>	<b>£</b>	<b>£</b>
Netherlands . .	279,013	285,329	231,818	652,807	669,827	567,360
Italy . .	80,372	77,228	85,265	260,310	251,954	275,652
United States . .	138,492	54,617	33,247	398,615	154,538	105,400
Australia . .	757	599	3,710	2,212	1,676	10,772
New Zealand . .	264,995	368,531	453,785	801,131	1,113,714	1,310,560
Canada . .	1,608,565	1,566,546	1,607,074	4,459,798	4,513,539	4,424,806
Other countries	33,892	37,240	36,452	109,330	119,565	115,314
<b>Total .</b>	<b>2,306,086</b>	<b>2,390,090</b>	<b>2,456,351</b>	<b>6,684,203</b>	<b>6,829,863</b>	<b>6,809,854</b>
<b>EGGS from—</b>	<b>Great Hundreds.</b>	<b>Great Hundreds.</b>	<b>Great Hundreds.</b>	<b>£</b>	<b>£</b>	<b>£</b>
Russia . .	7,233,433	8,154,635	9,217,586	2,584,712	2,929,487	3,282,194
Denmark . .	3,787,670	3,428,200	3,647,139	1,765,620	1,698,329	1,732,107
Germany . .	1,194,012	612,817	507,307	431,274	255,003	200,880
France . .	951,285	1,047,850	907,599	410,714	475,335	417,545
Italy . .	1,316,362	875,758	746,841	579,938	400,450	350,238
Austria-Hungary . .	1,987,671	1,300,246	1,370,121	752,723	547,005	555,998
Canada . .	50,393	3,984	1,860	24,338	2,182	1,097
Other countries	1,684,194	2,286,941	1,945,684	633,293	928,141	756,106
<b>Total .</b>	<b>18,210,070</b>	<b>17,710,431</b>	<b>18,344,137</b>	<b>7,183,112</b>	<b>7,235,932</b>	<b>7,296,145</b>

TABLE No. 12.—NUMBER OF LIVE STOCK IN 1907, 1908, AND 1909, returned as entering the Markets at the Places scheduled under the Markets and Fairs (Weighing of Cattle) Act, 1891.

[From *Agricultural Statistics*, 1909.]

	CATTLE.			• SHEEP.			SWINE.		
	1907.	1908.	1909.	1907.	1908.	1909.	1907.	1908.	1909.
Aberdeen .	59,416	65,471	65,483	251,868	242,418	233,788	12,812	18,406	11,097
Dundee .	21,051	19,498	21,551	80,149	28,738	33,556	4,068	4,394	3,807
Edinburgh	75,069	70,132	73,556	234,613	205,416	261,284	8,287	6,864	7,017
Stirling .	60,764	62,294	64,184	253,899	271,433	266,425	4,304	3,950	3,370
Glasgow .	78,886	81,706	86,856	352,063	358,756	409,667	3,669	3,631	3,578
Perth . .	114,198	118,408	126,887	540,183	526,370	578,789	12,025	12,638	12,885
	406,884	417,509	438,517	1,667,775	1,633,181	1,778,509	46,060	44,833	41,254

TABLE No. 13.—AVERAGE PRICES OF FAT CATTLE PER CWT. (LIVE WEIGHT) at the undermentioned Places in each Year from 1902 to 1909, together with the average Prices for Scotland, England, and Great Britain, compiled from the Returns received under the Markets and Fairs (Weighing of Cattle) Act, 1891.

	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Aberdeen . . .	34 9	33 4	32 8	32 6	32 5	32 8	33 6	34 5
Dundee . . .	34 11	33 8	32 7	32 0	31 11	32 8	33 5	34 0
Edinburgh . . .	37 4	35 5	34 10	33 10	34 2	35 1	36 5	37 2
Glasgow . . .	37 10	36 8	35 8	32 6	32 5	33 1	34 3	34 10
Perth . . .	37 4	35 1	33 3	34 4	34 6	35 8	37 0	37 11
SCOTLAND . . .	36 2	34 6	33 9	33 0	33 0	33 9	34 8	35 6
ENGLAND . . .	35 5	34 1	33 1	32 8	32 6	33 6	34 2	34 3
GREAT BRITAIN .	35 11	34 4	33 7	32 11	32 11	33 8	34 7	35 4

TABLE NO. 14.—NUMBER AND VALUE OF LIVE CATTLE, SHEEP, AND SWINE imported into the United Kingdom in the undermentioned Years. [*From Trade and Navigation Returns.*]

	Number.			Value.		
	1908.	1909.	1910.	1908.	1909.	1910.
CATTLE, from—				£	£	£
Channel Islands . .	1,343	2,308	2,488	23,085	41,265	45,940
Canada . . . . .	122,086	118,583	78,691	2,051,372	1,922,082	1,442,781
United States . . .	259,700	205,449	188,887	4,474,878	3,602,758	2,539,197
Argentine Republic .	..	..	..	..	..	..
Other countries . .	..	..	..	..	..	..
Total . . . . .	383,129	321,340	219,561	6,549,285	5,566,105	4,027,918
SHEEP AND LAMBS, from—						
Canada . . . . .	30,385	1,548	427	49,490	2,448	754
United States . . .	46,000	6,583	..	69,691	10,475	..
Argentine Republic .	..	..	..	..	..	..
Other countries . .	2,515	..	..	3,144	..	..
Total . . . . .	78,900	8,181	427	122,525	12,923	754
SWINE (not separately enumerated) }	..	..	..	..	..	..
TOTAL VALUE OF ANIMALS LIVING }	..	..	..	6,671,810	5,579,028	4,028,672

TABLE NO. 15.—NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS imported into Great Britain from Ireland in each of the Years 1904-1910.

	1904.	1905.	1906.	1907.	1908.	1909.	1910.
HORSES :—							
Stallions . . . .	235	202	257	199	249	234	277
Mares . . . . .	12,909	14,192	15,316	15,164	13,049	13,728	15,606
Geldings . . . .	14,356	16,329	18,243	17,890	15,355	15,273	16,011
Total . . . . .	27,500	30,723	33,816	33,253	28,653	29,235	31,894
CATTLE: OXEN, Bulls, and Cows :—							
Fat . . . . .	232,186	224,943	240,566	292,104	258,695	265,952	260,260
Store . . . . .	470,361	455,687	478,425	492,790	528,386	505,312	543,788
Other cattle . . .	6,896	6,205	5,897	6,221	9,789	18,377	12,324
Calves . . . . .	62,929	62,316	55,486	50,858	64,850	52,785	52,809
Total . . . . .	772,363	749,181	775,374	841,973	861,670	837,426	869,181
SHEEP :—							
Sheep . . . . .	372,159	350,953	293,174	317,039	347,076	430,839	348,018
Lambs . . . . .	367,107	349,673	364,239	343,876	354,608	440,019	383,684
Total . . . . .	739,266	700,626	657,413	660,415	721,684	870,858	731,702
PIGS :—							
Fat . . . . .	478,922	362,791	409,310	448,578	371,537	316,891	301,576
Store . . . . .	26,158	1,082	19,920	53,329	15,939	10,287	22,495
Total . . . . .	505,080	363,823	429,230	481,907	387,476	327,128	324,071

EDINBURGH CORN-MARKET GRAIN TABLES for WHEAT, BARLEY, OATS, and BEANS, showing the Quantity offered for Sale, the Quantity Sold, the Highest, Lowest, and Average Prices; also the Bushel-weights of the Highest and Lowest Prices of each kind of Grain for every Market-day, likewise the Results for every Month, and the final Result for the year 1910.

## WHEAT.

Date.	Quantity offered for Sale.	Quantity Sold.	Highest Price.	Lowest Price.	Average Price.	Table of Bushel-weights for			
						Highest Price.		Lowest Price.	
						lb.	lb.	lb.	lb.
1910	Imp. qr.	Imp. qr.	s. d.	s. d.	s. d.				
Jan.									
5	597	497	37 0	28 9	34 1	62	63	58½	
12	402	380	36 0	27 0	33 1		62	62	
19	644	507	37 6	32 0	35 1		63	60	
26	1,184	879	37 6	31 0	35 4		63	59½	
	2,867	2,263	37 1	29 9	34 7				
Feb.									
2	1,351	897	37 0	27 0	35 0		63	58½	
9	579	402	36 0	28 0	32 8		62	60	
16	822	380	36 6	30 0	33 11		63	61	
23	784	479	35 0	24 0	34 4	62	63½	55	
	3,536	2,218	35 11	28 2	34 2				
March									
2	1,052	678	35 0	25 0	32 1		63	60½	
9	594	588	34 8	27 0	32 4		62½	60½	
16	814	649	35 8	28 0	33 1		63½	61	
23	820	262	34 6	28 0	32 6		62	58½	
30	404	864	35 6	29 0	33 7		63	60	
	3,184	2,536	35 0	27 8	32 8				
April									
6	794	578	36 0	27 0	33 10		64	58½	
13	562	446	36 0	31 0	34 6		63	62	
20	1,096	649	35 9	31 0	34 5		63	62	
27	1,080	720	35 6	33 0	34 2		63	61 63	
	3,532	2,388	35 11	31 1	34 8				
May									
4	1,626	1,861	34 6	30 0	33 8		63	62	
11	1,171	981	35 0	22 0	32 1		63	55	
18	1,288	614	33 0	27 0	31 6		63	60½	
25	1,113	861	32 0	26 0	28 5		63	60½	
	5,198	3,767	33 7	27 4	31 7				
June									
1	694	444	30 6	24 0	28 4		62½	62	
8	1,421	1,069	30 0	25 6	28 2		63	63	
15	1,814	998	30 0	25 0	27 9		63	61	
22	1,883	1,238	30 6	23 0	28 1		64	58	
29	657	572	31 6	24 0	30 0		63	56	
	5,969	4,316	30 6	24 8	28 4				
July									
6	1,081	941	33 6	29 6	31 6		64	63	
13	976	550	34 6	27 0	32 5		63	60	
20	654	459	34 6	26 0	32 11		63	58	
27	1,068	938	35 0	29 0	34 5		63	58½ 61	
	3,728	2,898	34 10	28 8	32 10				

## WHEAT—continued.

Date.	Quantity offered for Sale.	Quantity Sold.	Highest Price.	Lowest Price.	Average Price.	Table of Bushel- weights for	
						Highest Price.	Lowest Price.
1910 Aug. 8	1,990	1,566	s. d. 34 0	s. d. 30 6	s. d. 33 6	lb. lb.	lb. lb.
10	1,041	717	34 3	28 0	32 4	63	59½
17	1,670	1,013	34 0	29 6	32 10	63	61
24	1,075	687	34 6	30 0	33 4	63 64	61
31	1,268	551	34 6	31 6	33 9	63	63
	7,039	4,539	34 2	30 1	33 2		
Sept. 7	1,069	735	34 6	31 6	33 9	63 64	63
14	493	433	34 0	24 9	33 3	63	60
21	354	354	34 6	24 0	32 0	63	60½
28	546	431	34 0	25 0	28 1	63	55
	2,462	1,958	34 5	25 7	32 1		
Oct. 5	506	341	35 0	23 9	30 0	63	58½
12	789	493	38 0	25 9	28 11	63	59
19	454	266	34 0	26 0	30 9	63	58½ 59½
26	886	497	37 6	25 0	31 3	63	58½
	2,635	1,602	34 11	25 3	30 4		
Nov. 2	1,042	427	35 6	29 6	32 10	64½	62
9	879	442	35 0	29 0	31 9	63	63
16	672	520	34 0	29 0	31 1	64½	60
23	569	569	32 0	26 3	30 8	63	55
30	488	488	32 6	28 0	31 1	63	62
	3,650	2,446	32 11	28 6	31 5		
Dec. 7	239	176	33 0	30 0	31 7	62	61
14	123	123	34 0	33 6	33 7	63	62 63
21	580	580	34 6	32 3	33 7	63	60½
28	829	709	34 6	32 0	33 3	63	58½ 61
	1,771	1,588	34 5	32 3	33 5		
Result for year	45,571	32,509	34 3	28 8	32 2		

## BARLEY.

1910 Jan. 5	1,302	816	30 3	22 0	26 7	55½	54 56
12	705	528	33 0	21 0	28 5	56	52½
19	970	559	32 0	27 0	29 7	56	55 56
26	1,638	554	31 6	22 0	28 8	56	52
	4,665	2,457	32 0	24 0	28 2		
Feb. 2	1,347	626	32 6	25 0	28 4	56	55
9	1,321	586	33 0	24 0	28 6	56	55 56
16	1,390	407	40 0	22 6	27 0	56	55
23	1,320	252	33 9	20 0	29 5	57	55
	6,378	1,871	33 8	23 8	28 3		

## BARLEY—continued.

Date.	Quantity offered for Sale.	Quantity Sold.	Highest Price.	Lowest Price.	Average Price.	Table of Bushel- weights for			
						Highest Price.		Lowest Price.	
1910						lb.	lb.	lb.	lb.
March	Imp. qr.	Imp. qr.	s. d.	s. d.	s. d.				
2	1,307	614	36 0	22 6	26 4	55	55	55	55
9	1,555	393	35 0	21 6	28 10	55	55	54	54
16	1,465	481	36 0	19 6	27 2	56	56	50½	50½
23	754	254	31 0	21 6	26 7	56	56	55	55
30	684	269	31 0	20 6	24 10	56	56	54½	54½
	5,765	2,011	33 4	22 1	26 10				
April									
6	408	216	32 6	20 6	27 1	56	56	54	54
13	163	168	27 0	20 3	22 7	56	56	54	54
20	130	50	22 6	20 6	20 11	54	54	56	56
27	98	34	21 0	20 0	20 6	55	55	54	54
	804	463	26 6	20 4	24 4				
May									
4	115	71	22 6	22 0	22 2	55	55	55	55
11	31	42	23 0	21 0	21 6	55	55	55	55
18	12	12	22 0	..	22 0	55	55	..	..
25	53	16	20 0	..	20 0	54	54	..	..
	261	141	21 8	21 6	21 9				
June									
1	123	..	..	..	..	..	..	..	..
8	55	31	24 0	..	24 0	56	56	..	..
15	165	165	21 6	20 0	21 1	55	56	55½	55½
22	236	110	21 6	20 6	20 7	55½	55½	55	55
29	87	..	..	..	..	..	..	..	..
	716	306	22 3	20 5	21 2				
July									
6	50	..	..	..	..	..	..	..	..
13	40	5	21 6	..	21 6	55½	55½	..	..
20	30	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..	..
	120	5	21 6	..	21 6				
Aug.									
8	..	..	..	..	..	..	..	..	..
10	57	57	22 6	..	22 6	55	55	..	..
17	..	..	..	..	..	..	..	..	..
24	..	..	..	..	..	..	..	..	..
31	22	22	24 6	..	24 6	55	55	..	..
	79	79	23 1	..	23 1				
Sept.									
7	717	637	26 0	24 0	25 4	55	56	54	55
14	1,417	1,150	26 6	20 0	24 3	55	56	53	53
21	2,211	1,442	23 6	21 6	20 4	56	56	54	54
28	2,644	1,826	27 6	17 6	24 3	56	56	51½	51½
	6,989	4,555	27 0	21 10	25 0				
Oct.									
5	2,564	1,189	27 9	13 6	24 1	56	56	53	53
12	1,622	1,166	26 6	19 0	23 7	55	56	53	53
19	1,913	1,333	27 6	20 0	24 2	56	56	53	53
26	746	513	27 6	20 6	24 6	56	56	53	53
	6,850	4,206	27 2	19 4	24 0				



## BARLEY—continued.

Date.	Quantity offered for Sale.	Quantity Sold.	Highest Price.	Lowest Price.	Average Price.	Table of Bushel-weights for	
						Highest Price.	Lowest Price.
1910	Imp. qr.	Imp. qr.	s. d.	s. d.	s. d.	lb. lb.	lb. lb.
Nov. 2	1,268	951	28 0	20 0	25 3	56	53½
9	1,831	996	27 6	22 0	25 6	56 56½	53½ 55
16	11,99	989	28 6	22 6	26 0	56	54
23	1,807	1,282	27 6	22 0	25 0	55	54½
30	1,354	809	27 6	22 0	25 7	56	53½
	6,959	5,027	27 11	21 10	25 5		
Dec. 7	1,518	1,045	45 0	21 6	26 8	56	55
14	1,326	531	27 6	21 6	25 10	56	58
21	1,241	538	27 0	20 0	25 5	55½ 56	54
28	662	557	28 0	22 0	25 10	57	54½
	4,747	2,671	30 9	21 4	26 1		
Result for year	44,333	23,797	28 5	21 9	25 8		

## OATS.

1910							
Jan. 5	2,787	902	23 0	16 0	19 11	44½	42
12	3,117	938	23 9	15 0	19 9	45	40
19	3,740	1,723	22 6	16 0	19 10	44½ 45½	41½
26	3,255	1,218	23 6	17 0	20 1	44½ 45	42
	12,899	4,781	23 0	16 4	19 11		
Feb. 2	3,136	1,368	23 6	17 0	19 6	45	42
9	2,902	923	22 3	17 0	20 0	44½	42½
16	2,923	1,356	24 0	16 9	20 2	44½	41
23	3,046	1,426	25 0	16 6	20 5	47	42
	12,007	5,073	24 1	16 11	20 0		
March 2	2,763	1,410	23 6	16 9	20 2	44½	42
9	3,562	1,824	25 6	15 0	21 0	45	41
16	2,879	1,271	25 0	16 6	20 6	44½	40
23	2,502	860	25 0	16 0	21 7	44½	40
30	2,320	715	25 0	18 0	20 11	44½	42
	14,019	5,589	24 8	16 8	20 9		
April 6	1,899	578	23 8	18 6	21 0	44	42
13	1,978	808	23 8	17 0	20 4	44½	40
20	1,761	640	23 0	17 6	20 7	44½	40
27	1,707	925	22 9	17 8	19 10	44½	41½
	7,345	2,951	22 10	17 8	20 4		
May 4	1,428	941	21 6	18 0	19 11	44½	42
11	1,478	639	22 0	17 0	19 7	45½	40
18	1,611	467	21 0	17 0	18 7	44½	42
25	977	290	21 8	17 0	19 10	44½	42
	5,494	2,387	21 8	17 2	19 7		

## OATS—continued.

Date.	Quantity offered for Sale.	Quantity Sold.	Highest Price.	Lowest Price.	Average Price.	Table of Bushel- weights for			
						Highest Price.		Lowest Price.	
1910						lb.	lb.	lb.	lb.
June	Imp. qr.	Imp. qr.	s. d.	s. d.	s. d.				
1	961	234	20 0	17 0	18 8	44½		42	
8	862	240	21 0	18 0	20 1	44½		42	
15	1,372	770	21 0	17 6	19 4	44½		42	
22	1,402	425	21 3	17 6	19 2	44		42	
29	1,102	481	21 6	17 8	18 11	44½		42	
	5,699	2,100	20 11	17 6	19 2				
July									
6	1,715	1,078	22 0	16 0	18 10	45½		42	
18	1,181	206	21 6	16 9	18 10	44½		42	
20	1,183	416	19 6	17 6	18 0	44½	42	43	
27	874	574	22 0	18 6	20 3	44½		42	
	4,903	2,269	21 6	17 7	19 1				
Aug.									
8	1,899	719	22 6	17 0	19 9	44½		41	
10	1,816	167	22 0	19 0	20 7	46		44	
17	1,368	892	22 0	17 0	19 5	44½		42	
24	1,075	480	22 0	16 6	20 0	44½		42	
31	641	447	23 0	17 0	20 9	44½		42	
	5,799	2,205	22 2	17 4	20 0				
Sept.									
7	1,593	1,163	23 6	16 9	20 11	44½		42	
14	1,607	1,095	22 3	18 0	19 10	44½		43	
21	1,187	652	21 6	17 0	19 8	44		42	
28	1,202	736	21 6	16 8	18 8	44½		43	
	5,580	3,646	21 10	17 2	19 11				
Oct.									
5	1,844	1,064	21 0	16 9	18 9	42½	44½	42	
12	1,297	584	21 0	16 0	18 6	44		42	
19	943	574	20 9	15 0	18 7	44½		42	
26	1,155	913	21 0	15 6	18 8	43½		42	
	4,730	3,135	20 11	15 10	18 7				
Nov.									
2	1,445	798	21 0	15 9	18 7	44		42	
9	1,418	1,065	21 0	16 6	18 10	44½		43	
16	1,505	1,171	21 6	17 0	18 10	44½		42½	
23	1,846	1,205	21 0	16 8	19 0	44	45	40	42
30	1,258	584	21 6	17 9	19 10	44½		42	
	6,967	4,753	21 2	16 8	18 11				
Dec.									
7	1,444	875	22 0	17 9	19 4	44½		42	
14	1,696	693	21 3	17 6	19 6	45		42	
21	1,940	698	21 0	18 0	19 5	44½		42	
28	1,712	465	21 0	18 0	18 10	44	42	42½	
	6,792	2,781	21 6	17 11	19 4				
Result for year	92,202	41,561	22 0	17 2	19 9				

## BEANS.

Date.	Quantity offered for Sale.	Quantity Sold.	Highest Price.	Lowest Price.	Average Price.	Table of Bushel- weights for	
						Highest Price.	Lowest Price.
1910	Imp. qr.	Imp. qr.	s. d.	s. d.	s. d.	lb. lb.	lb. lb.
Jan.	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..
26	..	..	..	..	..	..	..
	..	..	..	..	..		
Feb.	25	..	..	..	..	..	..
2	..	..	..	..	..	..	..
9	40	..	..	..	..	..	..
16	180	50	34 6	..	34 6	65	..
23	195	50	34 6	..	34 6		
March	75	45	34 6	..	34 6	65	..
2	..	..	..	..	..	..	..
9	12	..	..	..	..	..	..
16	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..
30	87	45	34 6	..	34 6		
April	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..
20	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..
	..	..	..	..	..		
May	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..
18	..	..	..	..	..	..	..
25	..	..	..	..	..	..	..
	..	..	..	..	..		
June	..	..	..	..	..	..	..
1	..	..	..	..	..	..	..
8	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..
22	..	..	..	..	..	..	..
29	..	..	..	..	..	..	..
	..	..	..	..	..		
July	..	..	..	..	..	..	..
6	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..
20	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..
	..	..	..	..	..		
Aug.	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..
10	..	..	..	..	..	..	..
17	..	..	..	..	..	..	..
24	..	..	..	..	..	..	..
31	..	..	..	..	..	..	..
	..	..	..	..	..		

BEANS—*continued.*

Date.	Quantity offered for Sale.	Quantity Sold.	Highest Price.	Lowest Price.	Average Price.	Table of Bushel- weights for	
						Highest Price.	Lowest Price.
1910							
Sept.	Imp. qr.	Imp. qr.	s. d.	s. d.	s. d.	lb. lb.	lb. lb.
7	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..
	..	..	..	..	..	..	..
	..	..	..	..	..		
Oct.							
5	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..
26	..	..	..	..	..	..	..
	..	..	..	..	..		
Nov.							
2	..	..	..	..	..	..	..
9	..	..	..	..	..	..	..
16	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..
30	..	..	..	..	..	..	..
	..	..	..	..	..		
Dec.							
7	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..
	..	..	..	..	..		
Result for year }	282	95	34 6	..	34 6		

## PRICES OF SHEEP SINCE 1818.

TABLE No. 1.—CHEVIOT SHEEP.

Year.	Wethers.		Ewes.		Lambs.	
	s.	d.	s.	d.	s.	d.
1818	28	0 to	80	0	8	0 to
1819	25	0 "	27	0	10	8 "
1820	20	0 "	25	0	10	0 "
1821	18	0 "	20	0	7	6 "
1822	12	6 "	18	0	4	6 "
1823	13	6 "	18	0	5	6 "
1824	14	0 "	19	0	4	6 "
1825	29	0 "	32	0	9	0 "
1826	17	6 "	21	6	7	0 "
1827	15	0 "	24	0	7	0 "
1828	18	0 "	27	6	7	0 "
1829	18	0 "	24	0	7	0 "
1830	15	0 "	21	0	6	0 "
1831	18	0 "	25	0	7	0 "
1832	19	0 "	24	0	7	0 "
1833	22	0 "	31	0	8	0 "
1834	22	0 "	31	0	9	0 "
1835	22	0 "	27	6	8	0 "
1836	24	0 "	31	6	10	0 "
1837	19	0 "	28	0	10	0 "
1838	23	0 "	30	6	12	0 "
1839	23	0 "	31	0	0	0 "
1840	24	0 "	33	0	7	0 "
1841	23	0 "	30	0	8	0 "
1842	22	6 "	28	0	7	6 "
1843	19	0 "	25	0	5	0 "
1844	21	0 "	29	0	8	0 "
1845	23	0 "	33	0	8	0 "
1846	24	0 "	33	6	10	0 "
1847	24	0 "	35	0	11	6 "
1848	23	0 "	34	6	11	6 "
1849	21	0 "	30	2	0	0 "
1850	20	6 "	29	6	8	0 "
1851	21	6 "	31	0	8	9 "
1852	21	0 "	32	0	8	0 "
1853	26	6 "	38	0	9	0 "
1854	25	0 "	36	0	9	0 "
1855	23	6 "	36	0	10	0 "
1856	22	0 "	35	6	10	0 "
1857	24	0 "	36	0	10	6 "
1858	24	0 "	34	6	10	6 "
1859	25	0 "	34	6	10	3 "
1860	26	0 "	38	0	12	6 "
1861	25	0 "	38	6	9	0 "
1862	27	0 "	37	6	10	0 "
1863	25	0 "	38	6	10	6 "
1864	31	0 "	41	0	14	0 "
1865	32	6 "	44	0	14	6 "
1866	37	0 "	50	0	15	0 "
1867	26	0 "	58	0	12	0 "
1868	30	0 "	32	0	7	6 "
1869	28	0 "	38	0	7	6 "
1870	35	6 "	43	0	10	0 "
1871	36	6 "	49	0	14	0 "
1872	45	0 "	56	0	16	0 "
1873	42	6 "	51	0	15	6 "
1874	38	6 "	44	6	12	0 "
1875	38	0 "	48	6	13	6 "
1876	40	0 "	52	6	13	6 "
1877	41	0 "	51	0	15	6 "
1878	35	6 "	48	0	14	0 "
1879	34	0 "	44	0	14	0 "
1880	30	0 "	43	6	12	6 "
1881	32	0 "	45	6	14	0 "
1882	40	0 "	51	0	14	0 "
1883	44	0 "	55	6	15	6 "
1884	36	0 "	47	6	12	6 "
1885	30	0 "	38	0	12	0 "
1886	32	0 "	40	0	12	6 "

TABLE NO. 1.—CHEVIOT SHEEP—*Continued.*

Year.	Wethers.				Ewes.				Lambs.						
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.			
1887	29	0	to	86	0	18	0	to	26	0	11	0	to	16	6
1888	30	0	"	88	0	19	0	"	27	0	12	0	"	17	6
1889	36	0	"	44	0	24	0	"	82	0	14	0	"	22	0
1890	31	0	"	40	0	22	0	"	80	0	12	6	"	20	0
1891	27	0	"	38	0	16	0	"	25	0	9	0	"	16	0
1892	22	0	"	30	6	13	0	"	22	6	5	0	"	11	0
1893	26	0	"	35	6	18	0	"	28	6	8	6	"	15	0
1894	26	0	"	37	0	20	0	"	31	0	10	6	"	18	6
1895	28	0	"	39	0	22	0	"	34	0	11	6	"	19	6
1896	24	6	"	34	0	19	0	"	80	6	9	0	"	16	6
1897	27	0	"	36	0	21	0	"	81	6	11	0	"	17	6
1898	27	0	"	37	0	22	0	"	82	6	12	0	"	18	6
1899	24	0	"	33	0	20	0	"	80	6	10	6	"	16	0
1900	26	0	"	36	0	22	0	"	82	6	12	0	"	17	0
1901	25	0	"	32	6	20	0	"	29	6	11	0	"	16	0
1902	24	0	"	31	6	19	0	"	27	0	9	6	"	14	6
1903	26	0	"	34	0	21	0	"	31	0	11	4	"	18	0
1904	28	6	"	36	6	23	0	"	32	6	13	0	"	20	0
1905	27	6	"	35	0	23	0	"	33	0	14	0	"	21	0
1906	30	0	"	38	0	26	0	"	34	6	15	0	"	23	0
1907	28	0	"	34	0	22	0	"	30	6	13	6	"	19	6
1908	26	0	"	32	6	21	0	"	27	6	11	6	"	17	0
1909	24	0	"	31	0	18	0	"	25	6	9	6	"	16	0
1910	27	0	"	35	0	22	0	"	31	0	12	0	"	20	0

TABLE NO. 2.—BLACKFACE SHEEP.

Year.	Wethers.				Ewes.				Lambs.						
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.			
1819	22	0	to	24	0	to	17	0	8	0	to	9	0		
1820	20	0	"	23	3	"	15	0	7	0	"	8	6		
1821	18	0	"	20	0	"	13	0	6	0	"	7	0		
1822	11	6	"	13	6	"	6	0	4	6	"	0	0		
1823	12	0	"	16	0	"	6	6	4	0	"	5	3		
1824	9	6	"	13	8	"	7	0	4	0	"	5	0		
1825	22	0	"	26	0	"	13	6	6	6	"	9	0		
1826	15	0	"	17	0	"	9	0	4	6	"	6	0		
1827	14	0	"	18	6	"	10	0	6	0	"	7	6		
1828	15	0	"	20	0	"	11	0	5	6	"	7	6		
1829	14	0	"	13	0	"	10	0	6	0	"	7	0		
1830	9	6	"	13	9	"	6	0	4	6	"	6	0		
1831	13	0	"	17	0	"	7	6	5	0	"	6	6		
1832	14	0	"	13	0	"	11	6	6	6	"	7	3		
1833	16	0	"	24	0	"	12	0	6	6	"	9	0		
1834	16	0	"	22	9	"	13	0	6	0	"	8	6		
1835	15	0	"	18	9	"	18	0	7	7	"	8	0		
1836	15	0	"	21	0	"	12	0	8	6	"	11	0		
1837	13	0	"	16	0	"	12	0	8	0	"	9	6		
1838	15	0	"	20	6	"	13	0	10	0	"	13	0		
1839	15	0	"	22	0	"	12	0	10	0	"	12	0		
1840	15	0	"	22	6	"	12	0	11	0	"	12	0		
1841	16	0	"	20	0	"	11	0	9	0	"	11	0		
1842	14	0	"	19	0	"	8	9	7	6	"	8	9		
1843	not quoted.				4	9	"	6	6	not quoted.					
1844	15	0	to	21	0	6	6	"	10	0	5	0	to	8	0
1845	14	0	"	23	0	8	0	"	12	0	6	0	"	8	0
1846	13	0	"	24	0	10	0	"	13	0	6	0	"	9	0
1847	20	6	"	25	0	10	0	"	14	0	8	6	"	9	6
1848	20	0	"	24	0	11	3	"	12	0	8	6	"	10	0
1849	not quoted.				not quoted.				7	7	0	"	7	6	
1850									7	0	"	0	9		
1851	17	6	to	23	0	9	0	to	12	0	6	6	"	8	6
1852	18	6	"	22	0	9	6	"	12	0	4	6	"	7	9
1853	22	0	"	27	0	14	6	"	16	6	8	0	"	11	6
1854	20	0	"	26	0	11	0	"	16	6	8	0	"	10	6
1855	23	6	"	26	6	14	0	"	15	0	10	0	"	11	0
1856	17	0	"	24	0	10	0	"	20	0	7	6	"	10	6
1857	20	0	"	29	0	10	6	"	15	0	9	2	"	11	6
1858	20	0	"	27	6	9	9	"	13	9	8	3	"	10	6
1859	20	9	"	25	0	10	0	"	14	0	8	3	"	11	0
1860	21	0	"	27	3	11	0	"	16	0	10	0	"	13	6
1861	21	9	"	29	0	12	0	"	23	9	8	3	"	14	0
1862	16	9	"	27	0	12	9	"	13	3	6	9	"	12	0

TABLE NO. 2.—BLACKFACE SHEEP—Continued.

Year.	Wethers.				Ewes.				Lambs.						
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.			
1863	20	0	to	30	6	13	0	to	16	0	8	0	to	11	6
1864	25	0	"	30	0	15	0	"	19	0	10	0	"	13	6
1865	15	6	"	32	6	15	0	"	25	0	10	0	"	17	0
1866	31	6	"	40	0	20	0	"	36	0	13	6	"	22	6
1867	20	0	"	30	6	14	0	"	22	0	7	6	"	13	6
1868	20	0	"	26	0	10	6	"	13	6	7	0	"	13	0
1869	22	0	"	28	0	11	0	"	14	0	6	9	"	9	0
1870	27	0	"	32	6	13	0	"	22	0	8	0	"	14	6
1871	23	0	"	37	0	13	0	"	23	0	11	0	"	16	3
1872	31	6	"	45	0	18	0	"	32	0	12	6	"	18	0
1873	28	0	"	39	0	16	6	"	27	0	7	0	"	16	0
1874	25	0	"	35	0	13	0	"	20	0	7	0	"	14	0
1875	26	6	"	37	6	15	0	"	21	3	9	6	"	17	6
1876	30	0	"	40	0	19	0	"	24	0	13	0	"	20	6
1877	35	0	"	38	9	13	0	"	25	0	13	6	"	23	0
1878	30	0	"	36	0	17	0	"	23	0	12	0	"	22	0
1879	25	0	"	35	9	16	0	"	24	0	10	6	"	20	0
1880	25	0	"	38	0	16	6	"	22	6	10	0	"	17	0
1881	30	0	"	39	0	15	0	"	23	0	10	0	"	15	0
1882	33	0	"	46	0	20	0	"	28	0	12	6	"	18	6
1883	36	0	"	50	6	24	6	"	33	0	14	0	"	21	6
1884	29	0	"	43	6	19	6	"	28	0	12	0	"	19	6
1885	24	0	"	34	0	13	0	"	22	6	10	0	"	15	0
1886	25	0	"	34	0	12	0	"	22	0	10	6	"	16	0
1887	22	0	"	30	0	11	0	"	19	0	8	0	"	13	0
1888	22	0	"	32	0	13	0	"	24	0	10	0	"	15	0
1889	26	0	"	40	0	18	0	"	29	0	13	0	"	22	0
1890	24	0	"	37	0	14	0	"	27	0	10	6	"	19	0
1891	21	0	"	37	0	10	0	"	24	0	7	6	"	15	0
1892	16	0	"	28	6	6	0	"	17	0	3	0	"	10	0
1893	21	0	"	37	0	12	0	"	24	0	7	0	"	14	6
1894	20	0	"	37	6	14	6	"	26	6	8	6	"	16	0
1895	23	0	"	41	0	16	0	"	28	6	9	0	"	17	0
1896	19	0	"	35	4	13	0	"	24	0	6	0	"	13	6
1897	21	0	"	36	6	15	0	"	25	6	7	0	"	14	6
1898	22	0	"	37	0	16	0	"	26	6	8	0	"	15	0
1899	20	0	"	33	6	13	0	"	24	0	5	6	"	13	0
1900	23	0	"	36	0	16	0	"	26	6	8	0	"	15	6
1901	20	0	"	35	0	14	0	"	25	6	6	6	"	14	6
1902	18	6	"	34	0	12	0	"	24	0	6	0	"	14	0
1903	21	0	"	36	0	15	0	"	28	0	7	0	"	16	6
1904	23	0	"	38	6	18	0	"	30	0	8	6	"	17	6
1905	21	6	"	37	0	19	0	"	31	0	9	0	"	18	6
1906	23	0	"	38	0	20	0	"	33	0	10	0	"	19	6
1907	21	0	"	33	6	17	0	"	28	0	8	6	"	17	6
1908	19	6	"	30	0	15	0	"	24	6	8	0	"	16	0
1909	17	0	"	28	0	11	6	"	22	0	6	3	"	13	0
1910	21	0	"	32	6	16	0	"	27	6	8	0	"	17	0

TABLE NO. 3.—PRICE OF WOOL, PER STONE OF 24 LB., SINCE 1818.

Year.	Laid Cheviot.		White Cheviot.		Laid Highland.		White Highland.			
	s.	d.	s.	d.	s.	d.	s.	d.		
1818	40	0	to	42	2	20	0	to	22	6
1819	21	0	"	22	0	10	0	"	10	3
1820	20	0	"	22	0	9	0	"	10	0
1821	18	0	"	20	0	9	0	"	10	0
1822	12	6	"	14	6	5	0	"	6	6
1823	9	0	"	10	6	5	0	"	5	9
1824	13	6	"	15	0	6	0	"	6	8
1825	10	6	"	22	0	10	0	"	10	6
1826	11	0	"	14	0	5	0	"	5	6
1827	11	0	"	14	0	5	6	"	6	9
1828	8	0	"	11	0	5	6	"	6	0
1829	8	6	"	11	0	4	3	"	0	0
1830	9	6	"	11	0	4	6	"	5	0
1831	17	0	"	20	0	7	6	"	8	6
1832	14	0	"	16	0	7	0	"	7	6
1833	18	0	"	20	7	10	0	"	11	0
1834	21	0	"	24	6	5	6	"	7	0
1835	19	0	"	20	6	9	6	"	10	8
1836	21	0	"	25	0	10	0	"	14	0
1837	12	0	"	14	0	7	0	"	7	8

TABLE No. 3.—PRICE OF WOOL—Continued.

Year.	Laid Cheviot.		White Cheviot.		Laid Highland.		White Highland.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1888	19 0	to 22 6	..	..	8 0	to 10 0	..	..
1889	18 0	" 20 0	..	..	8 0	" 12 0	..	..
1890	15 0	" 0 0	..	..	7 0	" 0 0	..	..
1891	15 0	" 16 9	..	..	6 0	" 7 5	..	..
1892	12 6	" 14 0	..	..	not quoted.		..	..
1893	9 0	" 11 6	..	..	5 0	to 6 0	..	..
1894	15 0	" 18 0	..	..	not quoted.		..	..
1895	14 6	" 17 6	..	..	7 6	to 8 6	..	..
1896	12 0	" 14 6	..	..	8 0	" 8 6	..	..
1897	12 6	" 14 0	..	..	not quoted.		..	..
1898	9 6	" 11 0	..	..	4 2	to 0 0	..	..
1899	12 0	" 16 6	..	..	6 0	" 6 6	..	..
1900	15 0	" 17 6	..	..	8 0	" 8 6	..	..
1901	12 0	" 16 0	..	..	8 0	" 9 3	..	..
1902	18 0	" 15 0	..	..	8 0	" 9 0	..	..
1903	19 0	" 22 0	..	..	11 0	" 12 6	..	..
1904	12 0	" 15 0	..	..	7 6	" 8 6	..	..
1905	14 6	" 19 0	..	..	8 6	" 9 0	..	..
1906	19 0	" 21 6	..	..	11 0	" 0 0	..	..
1907	19 0	" 24 0	..	..	13 0	" 14 3	..	..
1908	15 0	" 17 0	..	..	8 2	" 10 0	..	..
1909	18 6	" 24 0	..	..	10 9	" 11 6	..	..
1910	22 0	" 32 0	37 0	to 38 0	10 0	" 11 8	..	..
1911	19 6	" 27 0	from 80s. upwards.		not quoted.		..	..
1912	18 6	" 26 0	30 0	to 37 0	11 6	to 16 0	..	..
1913	25 6	" 31 0	38 0	" 42 0	15 3	" 17 6	..	..
1914	31 0	" 39 0	47 0	" 54 0	17 6	" 20 0	..	..
1915	23 0	" 30 0	44 0	" 45 0	15 0	" 17 0	..	..
1916	24 0	" 30 0	30 0	" 38 0	14 0	" 16 0	..	..
1917	16 0	" 21 6	not quoted.		not quoted.		..	..
1918	19 0	" 26 0	28 0	to 32 0	8 6	to 9 0	..	..
1919	18 0	" 26 6	not quoted.		8 6	" 10 0	..	..
1920	15 0	" 23 6	25 0	to 28 0	9 6	" 0 0	..	..
1921	20 0	" 26 6	30 0	" 34 6	12 0	" 15 0	..	..
1922	26 0	" 37 6	40 0	" 48 0	18 0	" 21 0	..	..
1923	17 0	" 18 0	34 0	" 40 0	9 0	" 12 0	..	..
1924	18 6	" 26 6	30 0	" 34 0	9 6	" 13 0	..	..
1925	25 0	" 32 0	34 6	" 36 0	12 6	" 16 0	..	..
1926	20 0	" 24 0	30 0	" 34 6	9 6	" 12 0	..	..
1927	20 9	" 26 0	28 0	" 30 0	10 0	" 12 0	..	..
1928	18 9	" 25 0	27 0	" 32 0	8 6	" 11 6	..	..
1929	15 0	" 17 0	prices very low.		7 0	" 0 0	..	..
1930	20 0	" 24 0	30 0	to 32 0	10 6	" 11 6	14 0	to 15 0
1931	17 0	" 21 0	27 0	" 30 0	5 0	" 9 6	12 0	" 13 0
1932	14 0	" 18 0	27 6	" 28 0	7 6	" 9 0	13 0	" 14 0
1933	13 0	" 18 0	26 0	" 28 0	6 6	" 8 6	11 6	" 12 6
1934	18 0	" 18 0	26 0	" 28 0	6 6	" 8 6	11 6	" 12 6
1935	12 0	" 17 0	22 6	" 26 0	6 0	" 8 0	11 6	" 12 0
1936	18 0	" 18 0	23 0	" 27 6	6 6	" 8 6	11 6	" 12 0
1937	14 0	" 22 0	23 0	" 28 0	7 0	" 9 0	11 6	" 13 0
1938	18 0	" 20 0	23 0	" 28 0	7 0	" 9 0	11 0	" 12 6
1939	13 0	" 18 0	24 0	" 28 0	7 0	" 9 0	11 0	" 13 6
1940	13 0	" 18 0	24 0	" 28 0	7 0	" 9 0	11 0	" 12 6
1941	12 6	" 18 0	22 0	" 28 0	7 0	" 9 0	11 0	" 12 6
1942	12 0	" 18 0	20 0	" 28 0	7 0	" 8 6	10 6	" 12 0
1943	12 0	" 17 0	20 0	" 27 0	7 0	" 8 0	10 0	" 12 0
1944	12 0	" 16 0	20 0	" 26 0	7 0	" 8 0	10 0	" 12 0
1945	12 0	" 18 0	20 0	" 25 0	7 0	" 8 0	10 0	" 11 6
1946	11 0	" 15 0	19 0	" 24 0	7 0	" 8 0	10 0	" 11 6
1947	11 0	" 14 0	18 0	" 23 0	7 0	" 8 0	10 6	" 12 0
1948	10 0	" 13 0	16 0	" 20 0	7 0	" 8 0	10 0	" 11 6
1949	10 0	" 18 0	13 0	" 18 6	7 0	" 8 0	8 6	" 9 6
1950	9 9	" 12 0	13 0	" 18 0	6 9	" 7 9	8 0	" 9 0
1951	9 0	" 10 0	11 0	" 16 6	5 9	" 6 6	8 0	" 9 0
1952	9 0	" 10 0	11 6	" 17 0	6 0	" 6 6	8 6	" 9 6
1953	9 0	" 12 0	15 0	" 18 0	7 0	" 8 0	11 6	" 12 6
1954	15 0	" 17 0	20 0	" 21 0	9 0	" 10 0	14 6	" 16 0
1955	17 0	" 20 0	24 0	" 26 0	10 0	" 11 0	15 6	" 16 0
1956	18 0	" 21 0	27 0	" 28 6	11 6	" 13 0	18 6	" 19 6
1957	*	*	22 0	" 24 0	11 0	" 12 6	19 0	" 20 0
1958	*	*	16 0	" 18 0	†	†	13 0	" 14 0
1959	*	*	24 0	" 26 0	†	†	22 0	" 24 0
1960	*	*	25 0	" 30 0	†	†	13 0	" 14 6

\* No Cheviots smeared now.

† No Highlands smeared now.



## GENERAL SHOW AT DUMFRIES, 1910.

THE Show of the Society for 1910 took place at Dumfries on Tuesday, 19th July, and three following days. It was the eighty-third Show which the Society has held, and from almost all practical points of view it attained even more than average success. On the opening day the weather was dry and pleasant, and the Judging was carried through under comfortable conditions. On the forenoons of the other three days, however, rain fell heavily, just at the hours when wet weather was most likely to deter visitors from leaving home. Having regard to this unfortunate circumstance the attendance of the public was encouragingly large, excepting on the closing day, when the attendance was disappointing, as has been the case at most recent Shows. In all the circumstances a credit balance of £562 is regarded as very satisfactory.

An admirable Showyard of about 28 acres was provided at Rotchell Park. The town of Dumfries provided a supply of water free of charge, along with a subscription of £50, and gave hearty assistance to the Society in carrying through the Show. The County Councils of Dumfries, Kirkcudbright, and Wigtownshire contributed handsomely to the Show funds by means of voluntary assessments upon owners of lands and heritages.

The display of all the leading breeds of live stock was highly creditable, and there was an excellent display of modern agricultural implements and machinery.

*Statistics.*

The following tables give the number of entries in the various sections :—

## 1. CATTLE.

Class.	SHORTHORN.	No. of Entries.
1. Aged bulls . . . . .	. . . . .	10
2. Two-year-old bulls . . . . .	. . . . .	9
3. One-year-old bulls . . . . .	. . . . .	9
4. Cows of any age . . . . .	. . . . .	8
5. Two-year-old heifers . . . . .	. . . . .	9
6. One-year-old heifers . . . . .	. . . . .	19
		— 64

## ABERDEEN-ANGUS.

7. Aged bulls . . . . .	. . . . .	5
Extra Stock . . . . .	. . . . .	1
8. Two-year-old bulls . . . . .	. . . . .	6
9. One-year-old bulls . . . . .	. . . . .	6
10. Cows of any age . . . . .	. . . . .	7
11. Two-year-old heifers . . . . .	. . . . .	6
12. One-year-old heifers . . . . .	. . . . .	12
		— 43

*Continued on p. 301.*



Fig. 46.—SHORTHORN BULL, "ALNWICK FAVOURITE" 90,653.

Winner of the President's Medal for best Shorthorn, Dumfries Show, 1910. The property of Mr J. Deane Willis, Bapton Manor, Codford St Mary. Bred by The Duke of Northumberland, K.G., Alnwick Castle. Age four years and ten months.



Fig. 47.—ABERDEEN-ANGUS BULL, "METAPHOR" 27,161.

Winner of the President's Medal for best Aberdeen-Angus animal, Dumfries Show, 1910. The property of Mr John M'G. Petrie, Glenlogie, Forbes, Alford. Bred by Mr T. H. Bainbridge, Eshott Hall, Felton, Northumberland. Age three years and seven months.



Fig. 48.—GALLOWAY HEIFER, "BROWNIE 4TH" 21,436.

Winner of the President's Medal for best Galloway, Dumfries Show, 1910. Bred by and the property of Mr Wm. A. M'Turk, Barlae, Dalry, Galloway. Age one year and four months.

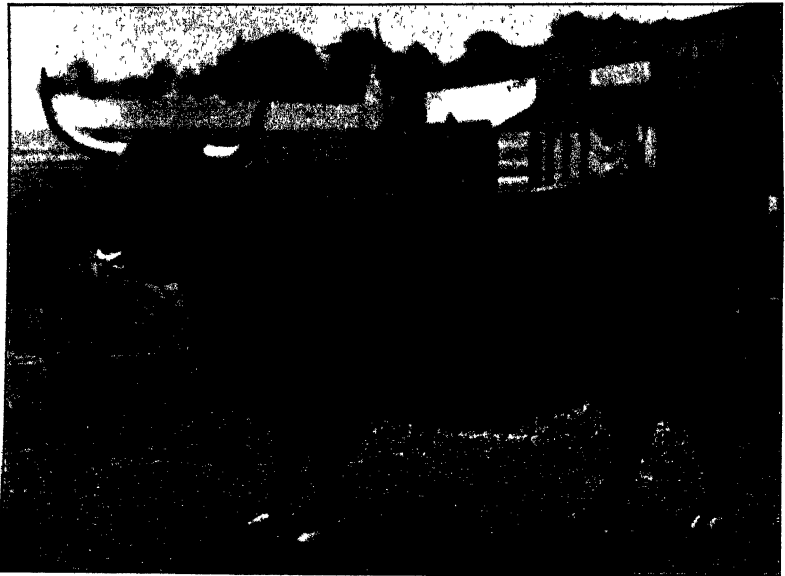


Fig. 49.—HIGHLAND HEIFER, "FINNERY QUEEN."

Winner of the President's Medal for best Highland animal, Dumfries Show, 1910. The property of Mr Gerard Craig Sellar of Ardtornish, Morvern. Bred by Mrs Craig Sellar, Ardtornish. Age three years and six months.



Fig. 50.—AYRSHIRE COW, "CARSTON LADY MARY STUART" 19,193.  
Winner of the President's Medal for best Ayrshire, Dumfries Show, 1910. Bred by and the property of Mr John Murray, Carston, Ochiltree. Age six years and four months.

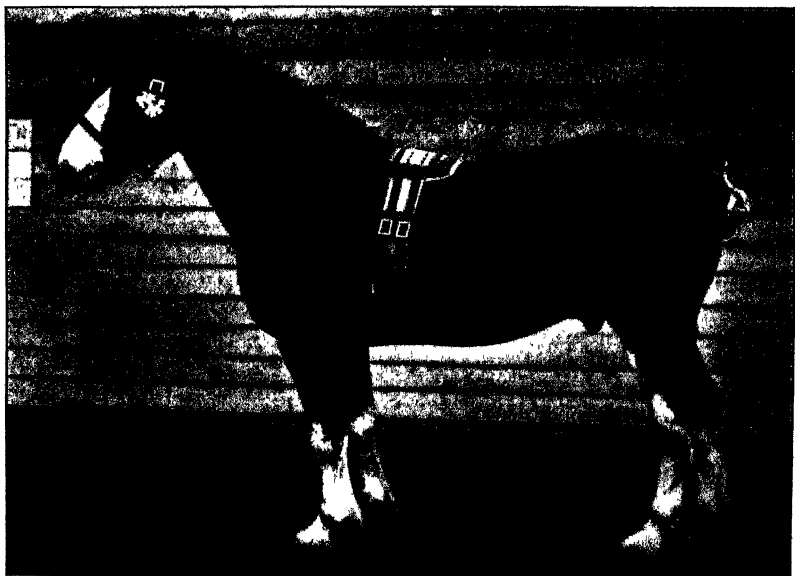


Fig. 51.—CLYDESDALE COLT, "BARON ASHVALE" 14,579.  
Winner of the President's Medal for best Clydesdale Stallion or Colt, Dumfries Show, 1910. The property of Messrs A. & W. Montgomery, Netherhall and Banks, Kirkcudbright. Bred by Messrs G. & J. Cocker, Hill of Petty, Fyvie. Age three years and one month.

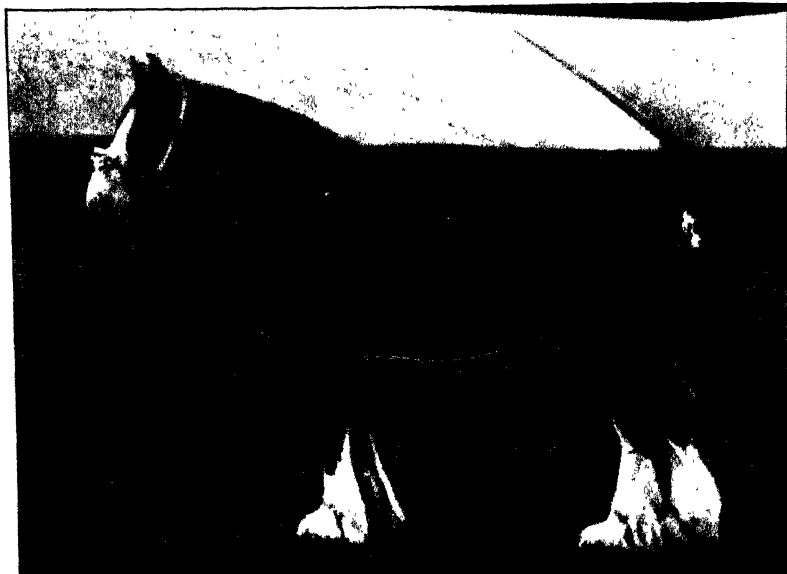


Fig. 52.—DRAUGHT GELDING, "AVOCA."

Winner of the President's Medal for best Draught Gelding, Dumfries Show, 1910. The property of Mr Alexander Clark, Newton, Markinch. Breeder unknown. Age four years.

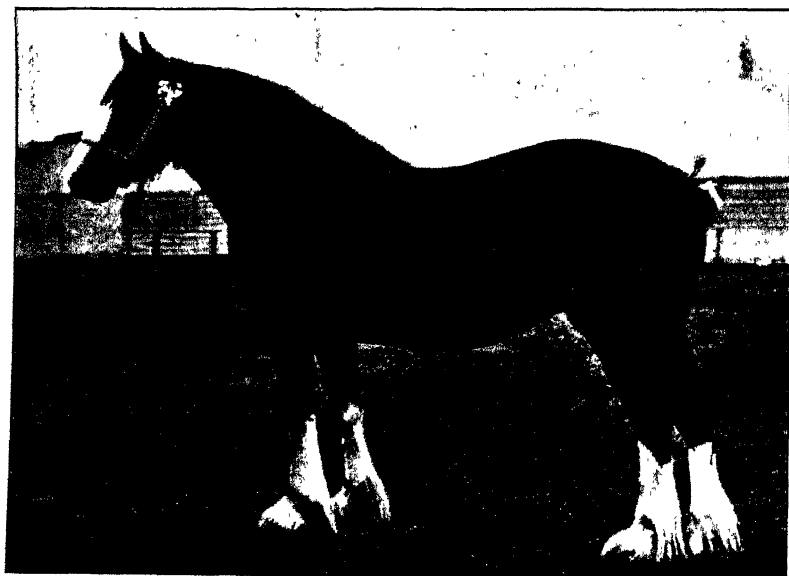


Fig. 53.—CLYDESDALE MARE, "BOQUHAN LADY PEGGY."

Winner of the President's Medal for best Clydesdale Mare or Filly, Dumfries Show, 1910. The property of Mr Stephen Mitchell of Boquhan, Kippen Station. Bred by Messrs D. & J. Carr, Red House, Carlisle. Age four years and two months.

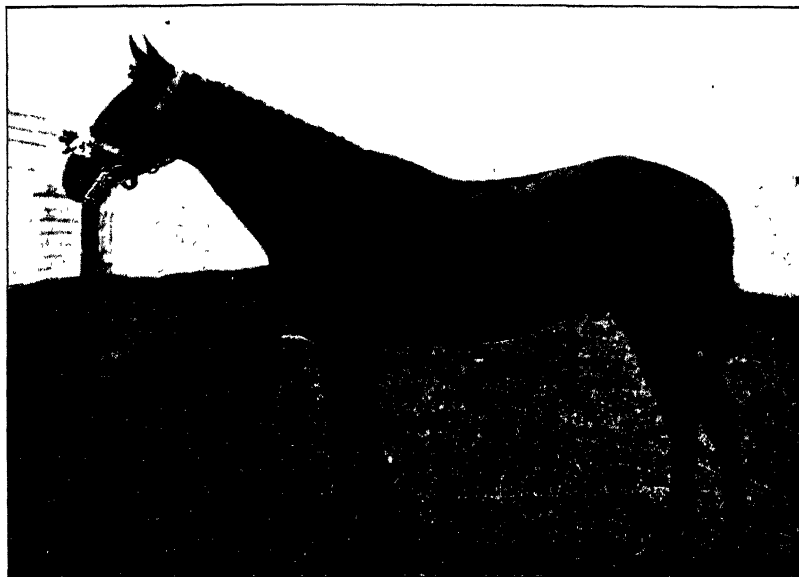


Fig. 54.—HUNTER GELDING, "SUSPENSE."

Winner of the President's Medal for best Hunter, Dumfries Show, 1910. The property of Mr J. H. Stokes, Great Bowden, Market Harboro'. Bred by Major Studdart. Age four years.

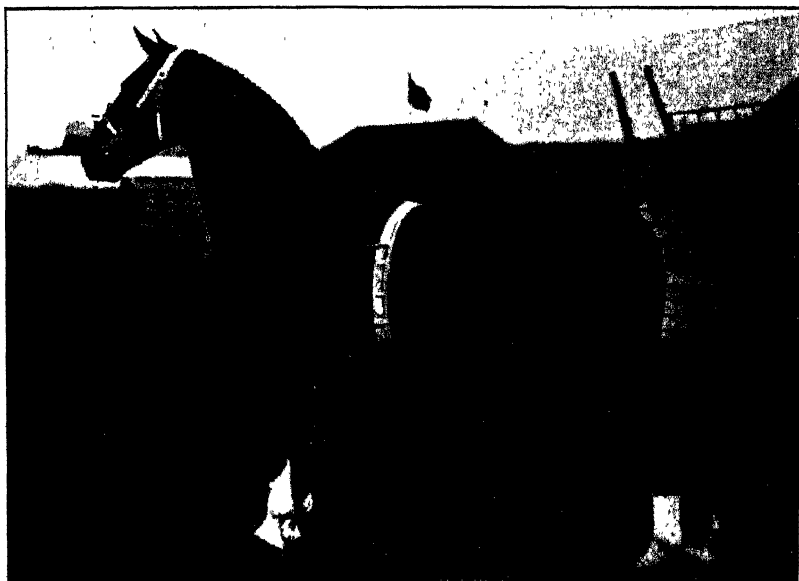


Fig. 55.—HACKNEY STALLION, "ADBOLTON ST PAUL" 10,052.

Winner of the President's Medal for best Hackney, Dumfries Show, 1910. Bred by and the property of Mr A. W. Hickling, Adbolton, Nottingham. Age four years.

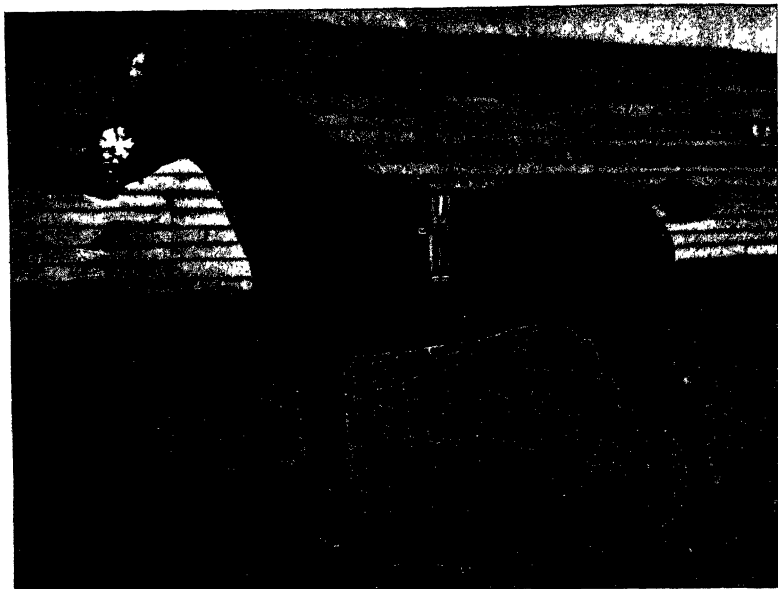


Fig. 56.—PONY STALLION, "JOHNNIE COPE" 10,278.

Winner of the President's Medal for best Pony, Dumfries Show, 1910. The property of Mr J. Ernest Kerr of Harviestoun Castle, Dollar. Bred by Sir Gilbert Greenall; Bart., Walton Hall, Warrington. Age seven years.



Fig. 57.—HIGHLAND PONY MARE, "LADY JEAN" 1915.

Winner of the President's Medal for best Highland Pony, Dumfries Show, 1910. Bred by and the property of the Duke of Atholl, K.T., Blair Castle, Blair Atholl. Age four years and two months.



Fig. 58.—SHETLAND PONY STALLION, "SILVERTON OF TRANSY."

Winner of the President's Medal for best Shetland Pony, Dumfries Show, 1910. Bred by and the property of Mr William Mungall of Transy, Dunfermline. Age four years and two months.





Fig. 59.—HACKNEY MARE, "BROXTON GELLETTE" 16,494.

Winner of the President's Medal for best animal in Driving Classes, Dumfries Show, 1910. The property of Mr J. Ernest Kerr of Harviestoun Castle, Dollar. Bred by Mr A. C. Carr, Broxton, Chester. Age seven years.



Fig. 60.—BLACKFACE SHEARLING TUP.

Winner of the President's Medal for best Blackface Sheep, Dumfries Show, 1910. Bred by and the property of Mr Charles Howatson of Glenbuck.



Fig. 61.—CHEVIOT SHEARLING EWE.

Winner of the President's Medal for best Cheviot Sheep, Dumfries Show, 1910. Bred by and the property of Mr John Robson, Millknowe, Duns.

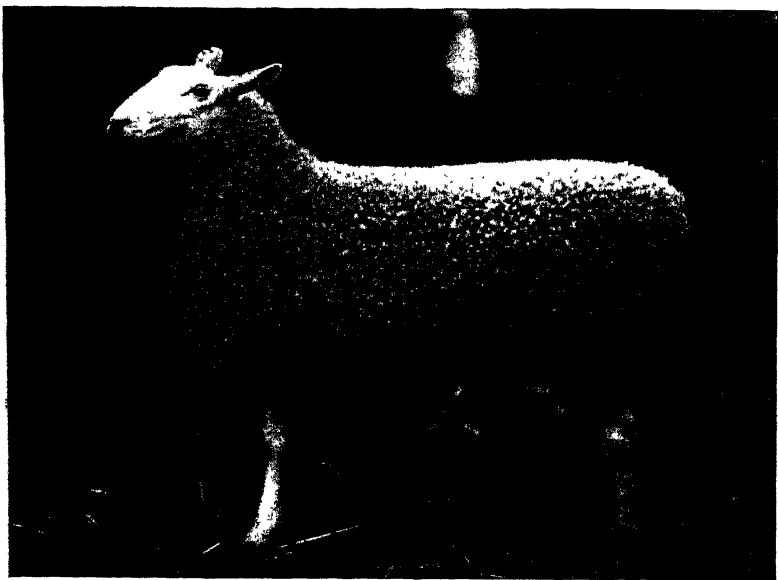


Fig. 62.—BORDER LEICESTER SHEARLING EWE.

Winner of the President's Medal for best Border Leicester, Dumfries Show, 1910. Bred by and the property of Messrs Archibald Cameron & Sons, Westside Farm, Brechin.

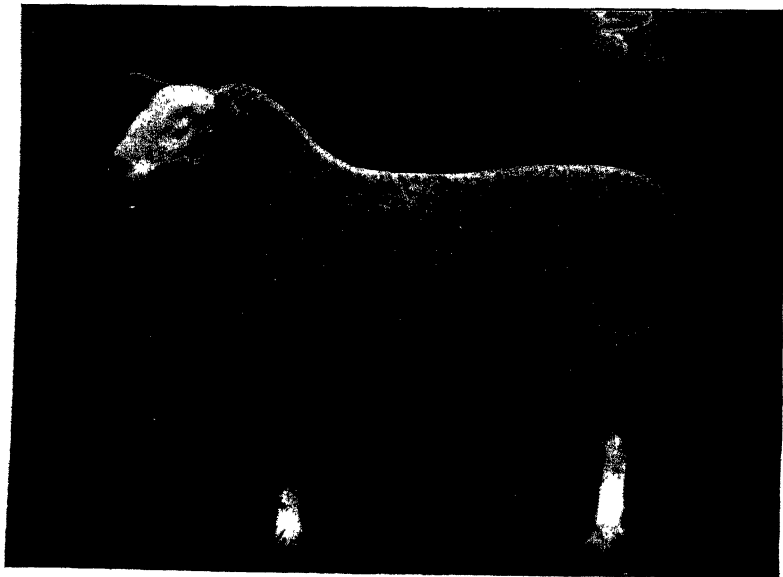


Fig. 63.—HALF-BRED TUP.

Winner of the President's Medal for best Half-Bred, Dumfries Show, 1910. The property of Mr James A. W. Mein, Hunthill, Jedburgh. Bred by Mr J. Jeffrey, Deuchrie, Prestonkirk. Three shear.

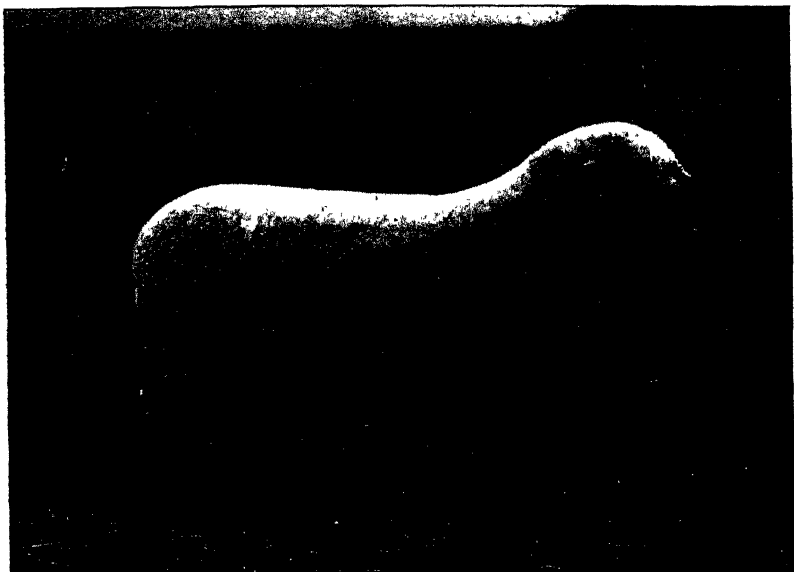


Fig. 64.—SHROPSHIRE TUP.

Winner of the President's Medal for best Shropshire, Dumfries Show, 1910. The property of Mr Thomas A. Buttar, Corston, Coupar-Angus. Bred by Mr T. S. Minton, Montford, Shrewsbury. Two shear.

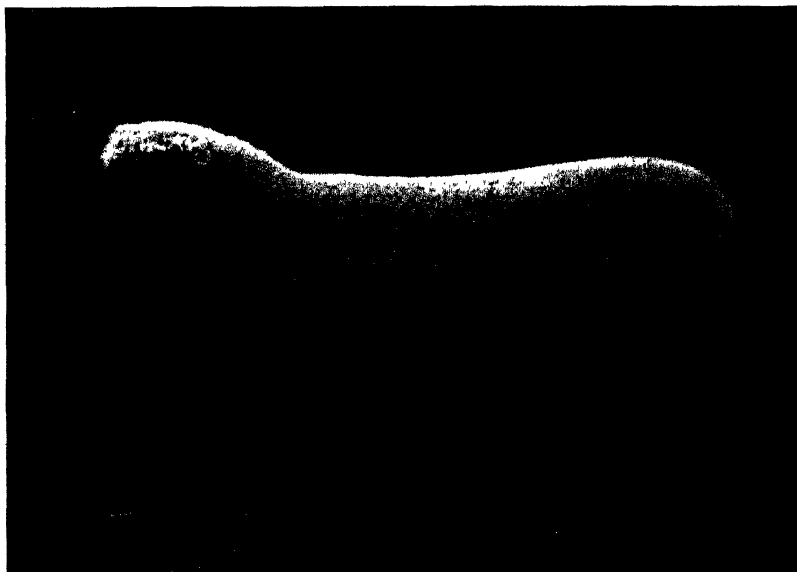


Fig. 65.—OXFORD DOWN SHEARLING TUP.

Winner of the President's Medal for best Oxford Down, Dumfries Show, 1910. Bred by and the property of the Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.

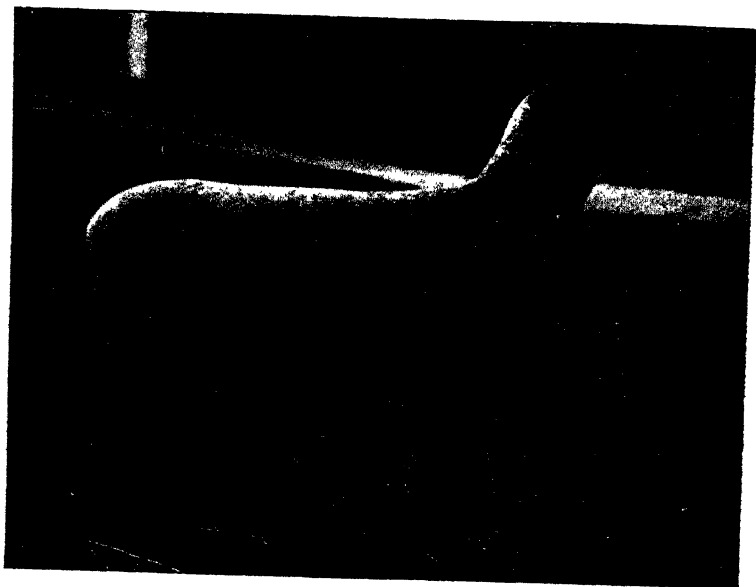


Fig. 66.—SUFFOLK SHEARLING EWE.

Winner of the President's Medal for best Suffolk Sheep, Dumfries Show, 1910. Bred by and the property of the Right Hon. Sir Ernest Cassel, G.C.M.G., Moulton Paddocks, Newmarket.

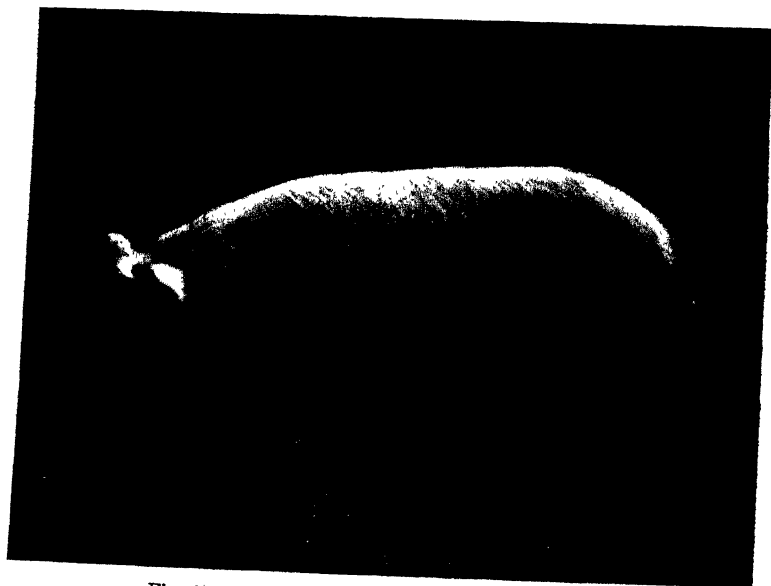


Fig. 67.—LARGE WHITE SOW, "LADY AMY" 25,478.

Winner of the President's Medal for best pen of Swine, Dumfries Show, 1910. The property of Mr R. E. W. Stephenson, Tue Brook, Liverpool. Bred by Mr Thomas Henson, Eastgate, Peterborough. Three years and two months.

## GALLOWAY.

13. Aged bulls . . . . .	6
14. Two-year-old bulls . . . . .	3
15. One-year-old bulls . . . . .	8
16. Cows of any age . . . . .	11
17. Two-year-old heifers . . . . .	10
18. One-year-old heifers . . . . .	19
	— 57

## HIGHLAND.

19. Aged bulls . . . . .	4
20. Two-year-old bulls . . . . .	6
21. One-year-old bulls . . . . .	12
22. Cows of any age . . . . .	5
23. Three-year-old heifers . . . . .	12
24. Two-year-old heifers . . . . .	7
	— 46

## AYRSHIRE.

25. Aged bulls . . . . .	7
26. Two-year-old bulls . . . . .	5
27. One-year-old bulls . . . . .	9
28. Cows in milk, calved before 1907 . . . . .	8
29. Cows in milk, calved after 1st January 1907 . . . . .	12
30. Cows of any age, in calf, or heifers calved in 1907, in calf, and due to calve within nine months after the Show . . . . .	6
31. Two-year-old heifers . . . . .	4
32. One-year-old heifers . . . . .	8
	— 59
Extra stock . . . . .	1
	<u>270</u>

## 2. HORSES.

## DRAUGHT STALLIONS.

33. Aged stallions . . . . .	19
34. Three-year-old entire colts . . . . .	21
35. Two-year-old entire colts . . . . .	29
36. One-year-old entire colts . . . . .	22
	— 91

## DRAUGHT GELDINGS.

37. Aged geldings . . . . .	8
38. Three-year-old geldings . . . . .	7
39. Two-year-old geldings . . . . .	6
	— 21

## DRAUGHT MARES AND FILLIES.

40. Mares with foal at foot . . . . .	9
41. Yeld mares, foaled before 1907 . . . . .	8
42. Three-year-old yeld mares, or fillies . . . . .	5
43. Two-year-old fillies . . . . .	15
44. One-year-old fillies . . . . .	18
	— 50

## HUNTERS.

45. Colts, geldings, or fillies, foaled in 1909, the produce of thoroughbred stallions out of mares of any breed . . . . .	10
46. Fillies, mares, or geldings, for field, foaled in 1908 . . . . .	18
47. Yeld mares, fillies, or geldings, for field, foaled in 1907 . . . . .	10
48. Mares or geldings, foaled before 1906, able to carry 18 st. 7 lb. and over . . . . .	2
49. Mares or geldings, foaled before 1906, able to carry any weight up to 18 st. 7 lb. . . . .	10
50. Mares or geldings, foaled in 1906, able to carry 18 st. 7 lb. and over . . . . .	6
51. Mares or geldings, foaled in 1906, able to carry any weight up to 18 st. 7 lb. . . . .	7
52. Hunter brood mares, with foal at foot . . . . .	5
	— 70

## HACKNETS.

53. Brood mare, 15 hands and upwards, with foal at foot, or to foal this season to a registered sire	
54. Brood mares, under 15 hands, with foal at foot, or to foal this season to a registered sire	
55. Yeld mares or fillies, three years old.	
56. Fillies, two years old	
57. Fillies, one year old	
58. Stallions, foaled in or before 1907, over 15 hands	
59. Stallions, foaled in or before 1907, over 14 and not over 15 hands	
60. Entire colts, two years old	
61. Entire colts, one year old	
	— 35

## PONIES.

62. Stallions, 3 years old and upwards, 14 hands and under	2
63. Yeld mares, fillies, or geldings, 3 years old and upwards, over 13 and not over 14 hands	6
64. Yeld mare, filly, or gelding, 3 years old and upwards, over 12 and not over 13 hands	1
65. Yeld mare, filly, or gelding, 3 years old and upwards, 12 hands and under	0
	— 9

## HIGHLAND PONIES.

66. Stallions, 3 years old or upwards, not exceeding 14.2 hands, entered or accepted for entry in the Highland section of the Polo Pony Stud-Book	6
67. Entire colts, foaled in 1908 or 1909	3
68. Mares, 3 years old or upwards, not exceeding 14.2 hands, yeld or with foal at foot, entered or accepted for entry in the Highland section of the Polo Pony Stud-Book.	12
	— 21

## SHETLAND PONIES.

69. Stallions, not exceeding 10½ hands, foaled before 1907	12
70. Entire colts, not exceeding 10½ hands, foaled in 1907 or 1908	
71. Mares, not exceeding 10½ hands, with foal at foot	13
72. Yeld mares, not exceeding 10½ hands	5
73. Fillies, not exceeding 10½ hands, foaled in 1907 or 1908	10
	49

## DRIVING COMPETITIONS.

74. Yeld mares, fillies, or geldings, any age, in harness, 15 hands and upwards	5
75. Yeld mares, fillies, or geldings, any age, in harness, under 15 hands (5)	4
	— 9
	<u>355</u>

## JUMPING.

1. Horses or ponies, any height	19
2. Horses or ponies, any height—handicap	18
3. Horses or ponies, any height—handicap	20
	— 57

## 3. SHEEP.

## BLACKFACE.

76. Tups above one shear	16
77. Shearling tups	38
78. Ewes above one shear, with lambs	10
79. Shearling ewes or gimmers	10
80. Tup lambs	11
	85

## CHEVIOT.

81. Tups above one shear	.	.	.	.	.	.	9
82. Shearling tups	.	.	.	.	.	.	11
83. Ewes above one shear, with lambs	.	.	.	.	.	.	9
84. Shearling ewes or gimmers	.	.	.	.	.	.	8
							— 37

## BORDER LEICESTER.

85. Tups above one shear	.	.	.	.	.	.	13
86. Shearling tups	.	.	.	.	.	.	47
87. Ewes above one shear	.	.	.	.	.	.	14
88. Shearling ewes or gimmers	.	.	.	.	.	.	29
							— 103

## HALF-BRED.

89. Tups above one shear	.	.	.	.	.	.	1
Extra stock	.	.	.	.	.	.	10
90. Shearling tups	.	.	.	.	.	.	7
91. Ewes above one shear	.	.	.	.	.	.	10
92. Shearling ewes or gimmers	.	.	.	.	.	.	— 31

## SHROPSHIRE.

93. Tup above one shear	.	.	.	.	.	.	1
94. Shearling tups	.	.	.	.	.	.	3
95. Ewes above one shear	.	.	.	.	.	.	2
96. Shearling ewes or gimmers	.	.	.	.	.	.	2
							— 8

## OXFORD DOWN.

97. Shearling tups	.	.	.	.	.	.	8
98. Shearling ewes or gimmers	.	.	.	.	.	.	2
							— 10

## SUFFOLK.

99. Shearling tups	.	.	.	.	.	.	6
100. Shearling ewes or gimmers	.	.	.	.	.	.	6
101. Tup lambs	.	.	.	.	.	.	4
102. Three ewe lambs	.	.	.	.	.	.	4
							— 20

## EXTRA SECTIONS.

103. Fat lambs, any breed or cross	.	.	.	.	.	.	1
							— 1
							<u>295</u>

## 4. SWINE.

## LARGE WHITE BREED.

104. Boars farrowed before 1909	.	.	.	.	.	.	4
105. Boars farrowed in 1909	.	.	.	.	.	.	8
106. Boars farrowed in 1910	.	.	.	.	.	.	7
107. Sows farrowed before 1909	.	.	.	.	.	.	8
108. Sows farrowed in 1909	.	.	.	.	.	.	6
109. Sows farrowed in 1910	.	.	.	.	.	.	9
							— 37

## BERKSHIRE.

110. Boars, any age	.	.	.	.	.	.	3
111. Boars farrowed in 1910	.	.	.	.	.	.	3
112. Sows, any age	.	.	.	.	.	.	6
113. Sows farrowed in 1910	.	.	.	.	.	.	5
							— 17



## 5. POULTRY.

1-98. Poultry . . . . . 481

## 6. DAIRY PRODUCE.

1. Powdered butter, not less than 7 lb.	14
2. Fresh butter, 3 1-lb. rolls .	17
3. Cheddar cheese, 56 lb. and upwards	
4. Sweet-milk cheese, flat shape, white in colour, made according to the Dunlop or other method .	18
5. Cheese, 14 lb. and under .	25
	— 110

## ABSTRACT.

	No. of Entries.
1. Cattle . . . . .	270
2. Horses . . . . .	355
3. Sheep . . . . .	295
4. Swine . . . . .	54
5. Poultry . . . . .	481
6. Dairy produce . . . . .	110

The following table gives a comparative view of the display of cattle, horses, sheep, swine, poultry, dairy produce, and implements, of the value of the premiums offered, and of the receipts at the entrance-gates, grand stands, and for catalogues at the Shows which have been held at Dumfries :—

Year.	Cattle.	Horses.	Sheep.	Wool.	Swine.	Poultry.	Dairy Produce.	Implements.	Premiums.	Drawings at Show.
1830 .	180	62	57	...	19	...	...	18	£353	£163
1837 .	181	77	118	...	14	...	31	36	650	382
1845 .	297	75	126	...	36	48	88	143	900	440
1860 .	298	166	279	...	42	72	195	911	1500	1275
1870 .	374	171	322	...	39	134	130	1878	1600	1897
1878 .	357	328	308	...	27	227	235	2578	2763	3308
1886 .	287	312	282	...	22	144	146	1639	2583	2314
1895 .	269	333	226	...	...	245	114	2265	2456	2599
1903 .	279	282	273	33	31	419	128	1834	3073	2919
1910 .	270	355	295	...	54	481	110	1950	3057	3411

*A Comparison.*

The following figures relating to some of the most successful Shows the Society has held, will be perused with interest:—

	Cattle.	Horses.	Sheep.	Swine.	Poultry.	Total Live Stock.	Implements.	Premiums.	Drawings at Show.	Profit.
Glasgow, 1867 .	286	212	257	58	150	963	1344	£1600	£3,005	£1307
Edinburgh, 1869	310	212	340	22	239	1123	1900	1600	4,078	2067
Glasgow, 1875 .	411	405	296	48	479	1639	2220	2665	6,231	3316
Edinburgh, 1877	339	342	305	30	234	1250	2292	2714	6,734	3710
Edinburgh, 1884	580	453	493	35	253	1814	2282	4343	6,548	1855
Edinburgh, 1893	380	349	294	31	360	1414	2268	2600	4,918	2323
Aberdeen, 1894 .	314	324	184	34	365	1221	2532	2440	5,121	1678
Perth, 1896 .	292	258	204	20	374	1148	1945	2205	4,788	2511
Glasgow, 1897 .	317	350	245	30	275	1217	2227	2897	4,392	2021
Edinburgh, 1899	366	518	477	46	551	1978	2585	3844	10,285	3911
Stirling, 1900 .	321	288	369	28	457	1463	2095	2915	4,305	1078
Inverness, 1901 .	360	257	204	22	499	1340	1460	2806	2,435	99
Aberdeen, 1902 .	380	253	243	42	475	1343	1988	2796	4,413	1604
Perth, 1904 .	348	315	283	35	413	1394	1972	3058	4,993	1828
Glasgow, 1905 .	310	462	284	60	534	1750	1875	3702	4,473	1203
Peebles, 1906 .	253	258	291	40	438	1280	1658	3072	2,596	416
Edinburgh, 1907	363	464	352	58	605	1842	2140	3614	7,061	2309
Aberdeen, 1908 .	331	299	237	42	509	1418	1931	3045	4,596	1881
Stirling, 1909 .	330	355	249	54	539	1527	1977	3017	4,638	1100
Dumfries, 1910 .	270	355	295	54	481	1455	1950	3057	3,411	562

### *Cattle.*

The show of cattle was fairly large, and on the whole of a high standard as to merit. Shorthorns as usual made a very good appearance, and a fitting champion of the breed was found in Mr Deane Willis's handsome roan bull "Alnwick Favourite" 90,653 (fig. 46). He is a well-proportioned, evenly fleshed bull, was bred by the Duke of Northumberland, and got by "Bapton Favourite" 76,080. He also won the Special Prize of £20 offered by the Shorthorn Society for the best Shorthorn Bull in the Show. The two younger classes of Shorthorn Bulls were also well filled, and there was an excellent display in the classes of Shorthorn Cows and Heifers. Mr Miller's First Prize Cow "La Belen" had a stiff tussle to win the Shorthorn Prize of £20 for the best female of the breed, the first prize two-year-old and yearling heifers following her very closely in merit.

The turn-out of Aberdeen-Angus cattle was not large, but the character of the animals was of the highest order. The President's Champion Medal here went to Mr Petrie, Glenlogie, for his exceptionally handsome bull "Metaphor" 27,161 (fig. 47), bred by Mr T. H. Bainbridge and got by "Echador" 16,496. The classes of cows and heifers were well filled, all the leading prize-winners being animals of exceptionally high merit.

As was expected at Dumfries, the muster of Galloway cattle was highly creditable. Here again the average standard of

merit was very high, in most cases the contest for the leading honours being very keen. The Champion Medal for the best animal of the breed went to Mr W. M'Turk for his beautiful heifer "Brownie 4th" 21,436 (fig. 48). This well-shaped heifer was bred by Mr M'Turk himself and got by "Lear" 9941.

So far away from the home of the breed, a large turn-out of Highland cattle was not looked for; yet the breed, at least in regard to merit, was well represented. In all the classes there were animals of decidedly high merit. Mr Sellar of Ardtornish had a very worthy winner of the Champion Medal in his stylish heifer "Fuinary Queen" (fig. 49), bred at Ardtornish and got by "Valentine XXVI." 2212.

Ayrshire cattle, as was to be looked for in the south-west, made an excellent display. The entries were numerous, and the general character of the animals highly satisfactory. Mr John Murray carried the Champion Medal here with his handsomely formed cow "Carston Lady Mary Stuart" 19,193 (fig. 50), bred by himself and got by "Manswrae St Barchan" 4639.

### *Horses.*

There has rarely been a finer display of Clydesdale horses than there was at Dumfries on this occasion. The classes were large, and the majority of the animals were of attractive shapes, desirable character, and high quality. Among an excellent lot of stallions and colts the Champion Medal went to Messrs A. & W. Montgomery's exceptionally handsome three-year-old colt "Baron Ashvale" 579 (fig. 51). Like a good many other leading winners this valuable horse hails from the North, his breeders being Messrs Cocker, Hill of Petty, Fyvie. He was got by "Rozelle" (10,639) out of "Hiawatha" mare "Lady Ashvale 19,285.

The three classes of Draught Geldings were fairly well filled. The Champion Medal for the best gelding went to Mr Alex. Clark, Newton, Markinch, for a good-looking four-year-old chestnut of unknown breeding (fig. 52).

The high standard of merit in the classes of male Clydesdales was well maintained by the mares and fillies, the younger classes being exceptionally well filled. The President's Medal for the best Clydesdale mare or filly was won by Mr Stephen Mitchell for his excellent four-year-old mare "Boquhan Lady Peggy" (fig. 53), the Cawdor Challenge Cup having been awarded for the same animal. She was bred by Messrs Curr, Redhouse, Carlisle, got by "Hiawatha" 1067, and out of "The Baron's Pride" mare "Lady Peggy" 15,453.

Thanks largely to liberal support from those interested in

hunting in the district of the Show, the display of Hunting horses was much above the average at the Highland Show. The entries were fairly numerous, and a number of animals of excellent quality and character were exhibited. The President's Medal for the best animal in the hunting classes went to Mr J. H. Stokes, for "Suspense" (fig. 54), a useful-looking four-year-old bay, bred in Ireland by Major Studdart, got by "Sudd" and out of "Fairy Tale."

The classes of Hackneys were unfortunately not well filled in regard to entries, especially the classes for older females. A good many of the animals, however, were quite satisfactory in regard to merit. The President's Medal for the best animal in the hackney classes went to Mr A. W. Hickling for his stylish four-year-old stallion "Adbolton St Paul" 10,952 (fig. 55), bred by himself and got by "Garton Duke of Connaught" 3009.

The classes of Ponies were small, but contained a number of excellent animals. The President's Medal was won by Mr Kerr of Harviestoun Castle for his stylish pony "Johnnie Cope" 10,278 (fig. 56), bred by Sir Gilbert Greenall and got by the famous "Sir Horace" 5402.

Highland Ponies made a wonderfully good display, the President's Medal going to the Duke of Atholl for his characteristic four-year-old mare "Lady Jean" 1915 (fig. 57), bred by his Grace and sired by the well-known Highland stallion "Bonnie Laddie" 329.

Shetland Ponies as usual made a very fine appearance in the Showyard. The classes were large and all the winners were animals of high merit. The President's Champion Medal went to Mr Mungall of Transy for his attractive four-year-old stallion "Silverton of Transy" (fig. 58), bred by himself and got by "Seaweed" 333.

There were not many entries in the Driving classes, but most of the animals made a very good appearance. The Champion Medal was won by Mr Kerr of Harviestoun Castle for his exceptionally handsome seven-year-old mare "Broxton Geltlette" 16,494 (fig. 59), bred by Mr Carr, Broxton, Chester, and got by "Royal Danegelt" 5785.

### *Sheep, Swine, &c.*

The show of Sheep was on a high level in almost all the sections, the leading Scottish breeds being especially well represented. The pens which won the President's Medals in the respective classes are shown in figs. 60, 61, 62, 63, 64, 65, and 66.

The display of Swine was decidedly above the average of recent Highland Shows. The entries were fairly numerous, and in all the classes there was high character and quality. The President's Medal for the best pig in the Show went to Mr Stevenson, The Brook, Liverpool, for his handsome Large White sow "Lady Amy" 25,478 (fig. 67), bred by Mr Henson, Peterborough.

In both the Poultry and Dairy sections there were excellent displays.

# PREMIUMS AWARDED BY THE SOCIETY IN 1910.

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## I.—DUMFRIES SHOW

*19th, 20th, 21st, and 22nd July 1910.*

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ABBREVIATIONS.—V., *Very Highly Commended.* H., *Highly Commended.*  
C., *Commended.*

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### CATTLE

#### SHORTHORN.

*PRESIDENT'S CHAMPION MEDAL for best Shorthorn.*

J. Deane Willis, Bapton Manor, Codford St Mary, "Alnwick Favourite" (90,653).

*Best Shorthorn Bull in the Show, entered or eligible for entry in Coates's Herd-Book—  
£20, given by the Shorthorn Society.*

J. Deane Willis, Bapton Manor, Codford St Mary, "Alnwick Favourite" (90,653).

*Breeder of best Bull of any age in Classes 1, 2, and 3—The Silver Medal.*

The Duke of Northumberland, K.G., Alnwick Castle, Alnwick.

CLASS 1. BULL, calved before 1908.—Premiums, £15, £10, £5, and £3.

1. J. Deane Willis, Bapton Manor, Codford St Mary, "Alnwick Favourite" (90,653).
2. George Harrison, Gainford Hall, Darlington, "Mintmaster" (96,107).
3. F. Miller, "La Belen," Clifton Road, Birkenhead, "Good Friday" (99,005).
4. Major Stirling of Fairburn, Muir of Ord, N.B., "Westside Broadhooks" (93,860).
- V. J. & J. Calder, Ardargie, Forgandenny, "Keir Raider" (102,645).

CLASS 2. BULL, calved in 1908.—Premiums, £15, £10, £5, and £3.

1. George Harrison, Gainford Hall, Darlington, "Prince Olaf 2nd" (103,410).
2. Viscount Tredegar, Tredegar Park, Newport, Mon., "Pretender" (103,348).
3. Wm. T. Malcolm, Dunmore, Larbert, "Auchnacree Bard" (101,800).
4. A. J. Marshall, Bridgebank, Stranraer, "What We Want."

## CLASS 3. BULL, calved in 1909.—Premiums, £12, £8, £4, and £2.

1. Duncan Stewart of Millhills, Crieff, "Collynie Cruickshank."
2. Walter Montagu Scott, Nether Swell Manor, Stow-on-the-Wold, Gloucestershire, "Primrose Star."
3. Major Stirling of Fairburn, Muir of Ord, N.B., "Fairburn Baron."
4. William T. Malcolm, Dunmore, by Larbert, "Golden Broadhooks."
- V. George Harrison, Gainford Hall, Darlington, "Gainford Pride 2nd."

*Best Shorthorn Female in the Show, entered or eligible for entry in Coates's Herd-Book—£20, given by the Shorthorn Society.*

F. Miller, "La Belen," Clifton Road, Birkenhead, "Daisy's Queen."

## CLASS 4. COW, of any age, in Milk.—Premiums, £12, £8, £4, and £2.

1. F. Miller, "La Belen," Clifton Road, Birkenhead, "Daisy's Queen."
2. Lord Polwarth, Mertoun House, St Boswells, "Butterscotch."
3. M. M. M'Causland, Drenagh, Limavady, "Fugue."
4. George Harrison, Gainford Hall, Darlington, "Elvetham Ruth."
- V. Sir Maurice Bromley-Wilson, Bart., Dallam Tower, Milnthorpe, Westmoreland, "Tyneside Daisy."
- H. Stephen Mitchell of Boquhan, Kippen Station, Stirlingshire, "Royal Violet."

## CLASS 5. HEIFER, calved in 1908.—Premiums, £10, £5, £3, and £2.

1. J. Deane Willis, Bapton Manor, Codford St Mary, Wilts., "Fairy Princess."
2. Wm. T. Malcolm, Dunmore, Larbert, "Dunmore Garland."
3. George Harrison, Gainford Hall, Darlington, "Ruth of Gainford."
4. George Harrison, Gainford Hall, Darlington, "Gainford Fairy."
- V. Lord Polwarth, Mertoun House, St Boswells, "Fancy Sowerby."

## CLASS 6. HEIFER, calved in 1909.—Premiums, £10, £5, £3, and £2.

1. F. Miller, "La Belen," Clifton Road, Birkenhead, "Angusta 125th."
2. Jas. M'William, Garbity, Orton Station, "Garbity Rosebud."
3. Richard Cornelius, Bankfields, Eastham, Cheshire, "Eastham Belle."
4. J. Deane Willis, Bapton Manor, Codford St Mary, Wilts., "Jacqueline."
- V. Anthony Morrison, Phingask, Fraserburgh, "Martha 5th."
- H. Duncan Stewart of Millhills, Crieff, "Mistress of the Mint."
- C. A. G. Martone Graham, Redgorton, Perth, "Marwood Queen 3rd."

## ABERDEEN-ANGUS.

*PRESIDENT'S CHAMPION MEDAL for best Aberdeen-Angus Animal.*

John M'G. Petrie, Glenlogie, Forbes, Alford, Aberdeenshire, "Metaphor" (27,161).

*Best Bull of any age in Classes 7, 8, and 9—Ballindalloch Challenge Cup, value £50, given by the late Sir George Macpherson Grant, Bart.*

John M'G. Petrie, Glenlogie, Forbes, Alford, Aberdeenshire, "Metaphor" (27,161).

*Breeder of the Winner of the Ballindalloch Challenge Cup—The Silver Medal.*

T. H. Bainbridge, Eshott Hall, Felton, Northumberland.

*Best Breeding Animal of the Breed in the Showyard—Champion Gold Medal, given by the Aberdeen-Angus Cattle Society.*

J. E. Kerr of Harviestoun Castle, Dollar, "Juanita Erica" (42,362).

*Breeder of best Bull of any age in Classes 7, 8, and 9—The Silver Medal.*

T. H. Bainbridge, Eshott Hall, Felton, Northumberland.

CLASS 7. BULL, calved before 1st December 1907.—  
Premiums, £15, £10, £5, and £3.

1. John M'G. Petrie, Glenlogie, Forbes, Alford, Aberdeenshire, "Metaphor" (27,161).
2. Andrew Brooks, North Elphinstone, Tranent, "Eagle of Dalmeny" (25,458).
3. George Cran, Morlich, Glenkindie, Aberdeenshire, "Just Jeshurun of Morlich" (25,823).
4. W. S. Ferguson, Kinochtry, Coupar-Angus, "Beaver 2nd of Ardross" (26,565).

CLASS 8. BULL, calved on or after 1st December 1907.—  
Premiums, £15, £10, £5, and £3.

1. R. Wylie Hill of Balthayock, Perth, "Erino" (27,997).
2. T. H. Bainbridge, Eshott Hall, Felton, Northumberland, "Gerace of Ballindalloch" (28,100).
3. James W. H. Grant, Wester Elchies, Aberlour, "Earl Elgin" (27,867).
4. John Rae, Mounthooly, Rosehearty, Aberdeenshire, "Jim of Wester Leochel" (23,194).
- V. George Sharp, Middleton House, Blackford, Perthshire, "Eclat of Freeland" (27,881).

CLASS 9. BULL, calved on or after 1st December 1908.—  
Premiums, £12, £8, £4, and £2.

1. Lord Allendale, Bywell Hall, Stocksfield-on-Tyne, "Elmhore" (29,122).
2. The Earl of Strathmore, Glamis Castle, Glamis, "Lord Emerald" (29,546).
3. D. Y. Stewart, Carse of Trowan, Crieff, "Prince Blueblood of Ballindalloch" (29,807).
4. R. Wylie Hill of Balthayock, Perth, "Erinello" (29,207).
- V. T. H. Bainbridge, Eshott Hall, Felton, "Emerson of Eshott" (29,139).

*Best Cow of any age in Class 10*—Ballindalloch Challenge Cup, value £50,  
given by the late Mr C. Macpherson Grant of Drumduan.

- J. E. Kerr of Harviestoun Castle, Dollar, "Juanita Erica" (42,362).

*Breeder of the Winner of the Ballindalloch Challenge Cup*—The Silver Medal.

- J. E. Kerr of Harviestoun Castle, Dollar.

CLASS 10. COW, of any age, in Milk.—Premiums, £12, £8, £4, and £2.

1. J. E. Kerr of Harviestoun Castle, Dollar, "Juanita Erica" (42,362).
2. James Kennedy of Doonholm, Ayr, "Ermosa" (42,354).
3. W. S. Ferguson, Kinochtry, Coupar-Angus, "Sealskin Pride" (42,055).
4. R. Wylie Hill of Balthayock, Perth, "Evergreen of Balthayock" (42,288).
- V. Donald M. MacRae of Stenhouse, Thornhill, Dumfriesshire, "Ellora of Stenhouse II." (39, 297).
- H. T. H. Bainbridge, Eshott Hall, Felton, "Kernel of Banks" (40, 040).

CLASS 11. HEIFER, calved on or after 1st December 1907.—  
Premiums, £10, £5, £3, and £2.

1. James Beddie, Banks, Strichen, "Demora Vine 17th" (43,307).
2. Col. George Smith Grant, Advie Mains, Advie, "Pride of Spey 7th" (43,800).
3. J. E. Kerr of Harviestoun Castle, Dollar, "Juanista Erica" (44,037).
4. T. H. Bainbridge, Eshott Hall, Felton, Northumberland, "Marjorie of Eshott" (44,354).

CLASS 12. HEIFER, calved on or after 1st December 1908.—  
Premiums, £10, £5, £3, and £2.

1. James Kennedy of Doonholm, Ayr, "Elmyra" (45,685).
2. T. H. Bainbridge, Eshott Hall, Felton, "Belinda of Olury" (45,451).
3. J. E. Kerr of Harviestoun Castle, Dollar, "Eulogia" (45,672).
4. Col. George Smith Grant, Advie Mains, Advie, "Prideaux" (45,445).
- V. James Beddie, Banks, Strichen, "Demora Vine 22nd" (44,901).
- H. James M'L. Marshall of Bleaton, Blairgowrie, "Jilt of Ballintomb 2nd" (44,801).
- C. Donald MacRae of Stenhouse, Thornhill, Dumfriesshire, "Parsophone of Stenhouse IV." (45,776).



## GALLOWAY.

*PRESIDENT'S CHAMPION MEDAL for best Galloway.*

Wm. A. M<sup>c</sup>Turk, Barlae, Dalry, Galloway, "Brownie 4th" (21,436).

*Special Prize of £5, 5s. for best Galloway Bull in Classes 13, 14, and 15, given by the Galloway Cattle Society.*

T. & R. Graham, Craigs Farm and Chapel Logan, Dumfries, "Marchfield Despised" (10,149).

*Breeder of best Bull of any age in Classes 13, 14, and 15—The Silver Medal.*  
The Duke of Buccleuch and Queensberry, K.T., Drumlanrig Castle, Thornhill.

CLASS 13. BULL, calved before 1st December 1907.—  
Premiums, £15, £10, £5, and £3.

1. T. & R. Graham, Craigs Farm and Chapel Logan, Dumfries, "Marchfield Despised" (10,149).
2. Thomas Biggar & Sons, Chapelton, Dalbeattie, "Javelin" (9441).
3. Robert Graham, Auchengassel, Twynholm, "War Boy" (10,176).
4. The Earl of Stair, Balker Home Farm, Castle-Kennedy, "Chief 5th of Stepford" (10,010).
5. Sir Robert W. Buchanan-Jardine of Castlemilk, Bart., Lockerbie, "Baron" (10,033).

CLASS 14. BULL, calved on or after 1st December 1907.—  
Premiums, £15, £10, £5, and £3.

1. James Wilson, Tundergarth Mains, Lockerbie, "Choice" (10,594).
2. Arthur H. Fox-Brockbank, The Croft, Kirksanton, Silcroft, Cumberland, "Master Key of Blackcombe" (10,772).
3. Robert Graham, Auchengassel, Twynholm, "Cilix 2nd" (10,305).

CLASS 15. BULL, calved on or after 1st December 1908.—  
Premiums, £12, £8, £4, and £2.

1. W. & D. Wilson, Craighouse, Lockerbie, "Mascot" (10,830).
2. J. M. Kennedy of Knocknailing, Dalry, Galloway, "Neil Gow" (10,729).
3. Robert Graham, Auchengassel, Twynholm, "Legacy of Auchengassel" (10,902).
4. George Robb, Barscobe, New Galloway, "Jenkins" (10,852).
5. T. & R. Graham, Craigs Farm and Chapel Logan, Dumfries, "Ivanhoe" (10,767).
6. Lewis Beattie, Mossknowe, Canonbie, "Gordon of Blackcombe" (10,775).
7. James Stobo, Halliday Hill, Auldgirth, "Churchill of Stepford" (10,756).

*Special Prize of £5, 5s. for Best Galloway Female in Classes 16, 17, and 18, given by the Galloway Cattle Society.*

1. Wm. A. M<sup>c</sup>Turk, Barlae, Dalry, Galloway, "Brownie 4th" (21,436).

CLASS 16. COW, of any age, in Milk.—Premiums, £12, £8, £4, and £2.

1. Arthur H. Fox-Brockbank, The Croft, Kirksanton, Silcroft, Cumberland, "Lady Primrose of Castlemilk" (16,350).
2. John Cunningham, Tarbreoch, Dalbeattie, "Netty 30th of Culmain" (16,984).
3. Thomas Biggar & Sons, Chapelton, Dalbeattie, "Lizzie of Chapelton" (17,418).
4. Sir Robert W. Buchanan-Jardine of Castlemilk, Bart., Lockerbie, "Ailsa of Castlemilk" (19,085).
5. Arthur H. Fox-Brockbank, The Croft, Kirksanton, Silcroft, Cumberland, "Clare of Blackcombe" (21,417).
6. John Cunningham, Tarbreoch, Dalbeattie, "Tarbreoch Doris 3rd" (19,511).
7. James Wilson, Tundergarth Mains, Lockerbie, "Dainty 2nd" (18,843).
8. Sir Robert W. Buchanan-Jardine of Castlemilk, Bart., Lockerbie, "Novelette of Castlemilk" (18,782).

CLASS 17. HEIFER, calved on or after 1st December 1907.—  
Premiums, £10, £5, £3, and £2.

1. Robert Graham, Auchengassel, Twynholm, "Kitty of Auchengassel" (21,181).
2. Arthur H. Fox-Brockbank, The Croft, Kirksanton, Silcroft, Cumberland, "Esme of Blackcombe" (21,418).
3. T. and R. Graham, Craigs Farm and Chapel Logan, Dumfries, "Louisa 8th of Tarbreoch" (21,125).
4. J. M. Kennedy of Knocknalling, Dalry, Galloway, "Myrtle" (21,106).
- V. Francis N. M. Gourlay, Bloomfield, Moniaive, Dumfriesshire, "Favourite 2nd of Craigneston" (19,849).
- H. Francis N. M. Gourlay, Broomfield, Moniaive, Dumfriesshire, "Flavia 2nd of Craigneston" (19,850).
- C. Sir Robert W. Buchanan-Jardine of Castlemilk, Bart., Lockerbie, "Novelette II. of Castlemilk" (19,786).
- C. William Graham, Harelaw Hill, Canonbie, "Glengowan" (21,484).

CLASS 18. HEIFER, calved on or after 1st December 1908.—  
Premiums, £10, £5, £3, and £2.

1. William A. M'Turk, Barlae, Dalry, Galloway, "Brownie 4th" (21,436).
2. J. M. Kennedy of Knocknalling, Dalry, Galloway, "Gladys 2nd of Blawquhairn" (21,894).
3. W. B. Donaldson, Dunkyan, Killearn, "Rowena."
4. Francis N. M. Gourlay, Broomfield, Moniaive, Dumfriesshire, "Rosetta of Craigneston" (21,453).
- V. J. M. Kennedy of Knocknalling, Dalry, Galloway, "Miss Lear" (21,389).
- H. The Duke of Buccleuch and Queensberry, K.G., K.T., Drumlanrig Castle, Thornhill, "Pride 44th of Drumlanrig."
- C. Robert Graham, Auchengassel, Twynholm, "Love-sick of Auchengassel" (21,608).
- C. James Stobo, Halliday Hill, Auldgrith, "Cassandra" (21,654).
- C. James Wilson, Tundergarth Mains, Lockerbie, "Clara 16th" (21,460).
- C. James Wilson, Tundergarth Mains, Lockerbie, "Nancy 12th" (21,457).

## HIGHLAND.

*PRESIDENT'S CHAMPION MEDAL for best Highland Animal.*

Gerard Craig Sellar, Ardtornish, Morvern, Argyllshire, "Fuinary Queen."

*Breeder of best Bull of any age in Classes 19, 20, and 21—The Silver Medal.*

W. D. Mackenzie of Farr.

CLASS 19. BULL, calved before 1908.—Premiums, £15, £10, £5, and £3.

1. D. A. Stewart of Lochdhu, Nairn, "An-t-Oighre" (2240).
2. William Dalziel Mackenzie of Farr, Daviot, Inverness, "Albannach" (2092).
3. Gerard Craig Sellar, Ardtornish, Morvern, Argyllshire, "Morven Monarch."
4. The Duke of Argyll, K.T., Inverary Castle, Inverary, "Quairtear-Na-Gleann" (1959).

CLASS 20. BULL, calved in 1908.—Premiums, £15, £10, £5, and £3.

1. The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Calum Ban a Bithast of Farr."
2. Ian Bullough, Meggernie Castle, Aberfeldy, "An Seanalair."
3. D. A. Stewart of Lochdu, Nairn, "An Ceannas."
4. Thomas A. Nelson of Achnacloich, Connel, Argyllshire, "Seanalair Buidhe III. of Melfort."
- V. J. M. Hall, Killeen Farm, Tayinloan, "Mac Albannach."
- H. Kenneth M'Donnell of Logan, Ardwell, Stranraer, "Calum Odhar of Southesk."

## CLASS 21. BULL, calved in 1909.—Premiums, £12, £8, £4, and £2.

1. D. A. Stewart of Lochdu, Nairn, "Morair Inernarin."
2. The Earl of Southesk, Kinnaird Castle, Brechin, "Sidon."
3. The Countess Dowager of Seafeld, Castle Grant, Grantown, Strathspey, "Lord Spey."
4. Gerard Craig Sellar, Ardtornish, Morvern, Argyllshire, "Torvaig Buidhe."
- V. The Earl of Southesk, Kinnaird Castle, Brechin, "Chevalier."
- H. Ian Bullough, Meggernie Castle, Aberfeldy, "Dombnull Buidhe of Cladish."
- C. Trustees of the late Sir Donald Currie, Balnacraig, Fortingall, "Iarla of Garth."
- C. Thomas A. Nelson of Achnacloich, Connel, Argyllshire, "Rona II. of Achnacloich."

## CLASS 22. COW, of any age, in Milk.—Premiums, £12, £8, £4, and £2.

1. D. A. Stewart of Lochdu, Nairn, "Laochag."
2. The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Mairi Ruadh II. of Atholl."
3. The Earl of Southesk, Kinnaird Castle, Brechin, "Princess Cornelia" (6555).
4. The Countess-Dowager of Seafeld, Castle Grant, Grantown, Strathspey, "Empress Victoria" (6513).
- V. The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Donnag Riabhach IV. of Atholl."

## CLASS 23. HEIFER, calved in 1907.—Premiums, £10, £5, £3, and £2.

1. Gerard Craig Sellar, Ardtornish, Morvern, Argyllshire, "Fuinary Queen."
2. The Earl of Southesk, Kinnaird Castle, Brechin, "Princess Anna."
3. William Dalziel Mackenzie of Farr, Daviot, Inverness, "Badan Ruadh of Farr" (7627).
4. The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Bean Odhar II. of Atholl."
- V. The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Te Riabhach XI. of Atholl."
- H. D. A. Stewart of Lochdu, Nairn, "Targeal."
- C. Kenneth M'Douall of Logan, Ardwell, Stranraer, "Carrick Aimey of Logan."

## CLASS 24. HEIFER, calved in 1908.—Premiums, £10, £5, £3, and £2.

1. Gerard Craig Sellar, Ardtornish, Morvern, Argyllshire, "Finnary Duchess."
2. The Duke of Atholl, K.T., Old Blair, Blair-Atholl, "Donnag Riabhach VI. of Atholl."
3. The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Te Riabhach XII. of Atholl."
4. D. A. Stewart of Lochdu, Nairn, "Targeal."
- V. Kenneth M'Douall of Logan, Ardwell, Stranraer, "Carrick Amile of Logan."
- H. D. A. Stewart of Lochdu, Nairn, "Loggie."

## AYRSHIRE.

*PRESIDENT'S CHAMPION MEDAL for best Ayrshire.*

John Murray, Carston, Ochiltree, "Carston Lady Mary Stuart" (19,193).

*Special Prize of £10 for the best Male Animal of the Ayrshire breed, entered with a number in the Ayrshire Cattle Herd-Book not later than 1st January 1910*  
—given by the Ayrshire Cattle Herd-Book Society.

Andrew Mitchell, Lochfergus, Kirkcudbright, "Peter Pan" (7140).

*Breeder of best Bull of any age in Classes 25, 26, and 27—The Silver Medal.*

Robert Osborne, Morton Mains, Thornhill.

## CLASS 25. BULL, calved before 1908.—Premiums, £12, £8, and £4.

1. Andrew Mitchell, Lochfergus, Kirkcudbright, "Peter Pan" (7140).
2. Robert Osborne, Morton Mains, Thornhill, "Morton Mains Valmont" (7468).
3. Homer Young, Redhills, Dumfries, "Special License" (7579).
- V. James Howie, Hillhouse, Kilmarnock, "Special Spice" (8146).
- H. Thomas Barr, Hobsland, Monkton, "Hobsland Peer."
- C. Crichton Royal Institution, Crichton Farm, Dumfries, "Crichton Commodore."

## CLASS 26. BULL, calved in 1908.—Premiums, £10, £7, and £3.

1. James Howie, Hillhouse, Kilmarnock, "Sir William" (8096).
2. Andrew Mitchell, Lochfergus, Kirkcudbright, "Silver Crest" (7571).
3. James Howie, Hillhouse, Kilmarnock, "Andrew Likely" (8151).
- V. Robert Osborne, Morton Mains, Thornhill, "Auchenbrain Pluto" (7541).
- H. Robert Osborne, Morton Mains, Thornhill, "Craigbrae Buccleuch" (7943).

## CLASS 27. BULL, calved in 1909.—Premiums, £8, £5, and £3.

1. James Howie, Hillhouse, Kilmarnock, "Full Bloom" (8147).
2. Hugh B. Wilson, Auchencloigh, Ochiltree, "Lord Darnley" (8009).
3. James Howie, Hillhouse, Kilmarnock, "Ayr Review" (8148).
- V. James Robb, Hindsward Farm, Old Cumnock, "Oliver Twist" (8144).
- H. Robert Woodburn, Whitehill, Hurlford, "Arness Hopeful."
- C. Thomas Barr, Hobsland, Monkton, "Hobsland Gipsy King."

*Special Prize of £10 for the best Female Animal of the Ayrshire breed entered with a number in the Ayrshire Cattle Herd-Book, not later than 1st January 1910*  
—given by the Ayrshire Cattle Herd-Book Society.

John Murray, Carston, Ochiltree, "Carston Lady Mary Stuart" (19,193).

## CLASS 28. COW, calved before 1907, in Milk.—Premiums, £12, £8, and £4.

1. James Lawrie, West Newton, Strathaven, "Bloomer 8th" (19,252).
2. Andrew Mitchell, Lochfergus, Kirkcudbright, "Favourite."
3. Alexander Cross of Knockdon, Maybole, "Blythsome" (18,151).
- V. Randolph C. Dudgeon, Cargen Holm, Dumfries, "Princess III."
- H. William Murray, Kirkland, Closeburn, "Gipsy Again."
- C. Homer Young, Redhills, Dumfries, "Hannah 6th."

CLASS 29. COW, in Milk, calved after 1st January 1907.—  
Premiums, £10, £7, and £3.

1. Charles Douglas of Auchlochan, Lesmahagow, "Auchlochan Janet."
2. Alex. Hunter, Laigh Langside, Craigie, Kilmarnock, "Polly 2nd."
3. Thomas Brown, Drum, Thornhill, "Snowdrop."
- V. Charles Douglas of Auchlochan, Lesmahagow, "Auchlochan Dewdrop" (22,858).
- H. William Murray, Kirkland, Closeburn, "Red Rose II."
- C. William Murray, Kirkland, Closeburn, "Vanora II."

## CLASS 30. COW of any age, in Calf, or HEIFER, calved in 1907, in Calf and due to calve within nine months after the Show.—Premiums, £10, £7, and £3.

1. John Murray, Carston, Ochiltree, "Carston Lady Mary Stuart" (19,193).
2. Henry Keswick, Cowhill Tower, Holywood, Dumfries, "Favourite" (22,074).
3. Crichton Royal Institution, Crichton Farm, Dumfries, "Crichton Beauty 3rd" (16,475).
- V. Thomas Brown, Drum, Thornhill, "Rosebud" (22,195).
- H. Alex. Cross, Knockdon, Maybole, "Bridesmaid IV." (19,089).
- C. Crichton Royal Institution, Crichton Farm, Dumfries, "Crichton Ella 7th" (20,909).

## CLASS 31. HEIFER, calved in 1908.—Premiums, £10, £5, and £3.

1. James Howie, Hillhouse, Kilmarnock, "Creampots" (25,810).
2. Robert Osborne, Morton Mains, Thornhill, "Morton Mains Zingara" (24,884).
3. Homer Young, Redhills, Dumfries, "Nellie."
- V. Robert Osborne, Morton Mains, Thornhill, "Morton Mains Thoughtless Beauty" (24,802).

CLASS 32. HEIFER, calved in 1909.—Premiums, £3, £5, and £3.

1. Thomas Barr, Hobsland, Monkton, "Hobsland Nettie."
2. Thomas Barr, Hobsland, Monkton, "Hobsland Sadie."
3. James Howie, Hillhouse, Kilmarnock, "Bright Lady" (25,689).
- V. Robert Osborne, Morton Mains, Thornhill, "Morton Mains Memonas."
- H. Homer Young, Redhills, Dumfries, "Royal Jean."
- C. Homer Young, Redhills, Dumfries, "Amelia."

#### EXTRA STOCK.

The following was Very Highly Commended, and a Medium Silver Medal awarded :—  
Crichton Royal Institution, Crichton Farm, Dumfries, Ox (Shorthorn and Galloway Cross).

### HORSES

#### FOR AGRICULTURAL PURPOSES.

##### DRAUGHT STALLIONS.

*PRESIDENT'S CHAMPION MEDAL for best Clydesdale Stallion or Colt.*

- A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Baron Ashvale" (14,579).

*Breeder of best Male Animal of any age in Classes 33 to 36—The Silver Medal.*

- G. & J. Cocker, Hill of Petty, Fyvie.

CLASS 33. STALLION, foaled before 1907.—Premiums, £20, £15, £10, and £4.

1. T. Purdie-Somerville, Sandilands, Lanark, "Scotland Yet" (14,839).
2. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Gartly Bonus" (13,491).
3. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "British Time" (14,610).
4. Wm. Taylor, Park Mains, Renfrew, "Sir Spencer" (13,211).
- V. Douglas Bros., Early Pier, Eddleston, "Valdor" (14,416).
- H. William Dunlop, Dunure Mains, Ayr, "Royal Walter" (13,717).
- C. William Renwick, Meadowfield, Corstorphine, "Dunure Nugget" (14,103).

CLASS 34. ENTIRE COLT, foaled in 1907.—Premiums, £20, £15, £10, and £4.

1. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Baron Ashvale" (14,579).
2. Matthew Marshall, Bridgebank, Stranraer, "Memo" (15,313).
3. George Alston, Loudoun Hill, Darvel, "Black Douglas" (14,599).
4. William Dunlop, Dunure Mains, Ayr, "The Right Honourable" (14,879).
- V. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Glenavon" (15,237).
- H. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Baron Ideal" (14,585).
- C. A. M. Simpson, Whitecross, East Kilbride, "High Merit."

CLASS 35. ENTIRE COLT, foaled in 1908.—Premiums, £20, £12, £8, and £4.

1. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Royal Guest" (15,363).
2. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Title Deeds" (15,451).
3. Wm. Taylor, Park Mains, Renfrew, "Sir Rudolph."
4. James Kilpatrick, Craigie Mains, Kilmarnock, "Craigie Dorando" (15,186).
- V. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Baron Bute" (15,129).
- H. John P. Sleight, St John's Wells, Fyvie, "Lord Morton" (15,294).
- G. Wm. Clark, Netherlea, Cathcart, "Boyinto" (15,159).
- C. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright, "Baron Glenboig" (15,135).
- C. William Renwick, Meadowfield, Corstorphine, "Rubio" (15,381).

CLASS 36. ENTIRE COLT, foaled in 1909.—Premiums, £15, £10, £6, and £4.

1. James Kilpatrick, Craigie Mains, Kilmarnock.
2. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright.
3. William Dunlop, Dunure Mains, Ayr, "Dunure Index."
4. James Kilpatrick, Craigie Mains, Kilmarnock.
5. A. & W. Montgomery, Netherhall and Banks, Kirkcudbright.
- H. Daniel Liddell, Nethershields, Quarter, Hamilton, "Royal George."
- C. Douglas Bros., Early Pier, Eddleston.
- C. James Gray, Birkenwood, Gargunnoch, "Ducu."

#### DRAUGHT GELDINGS.

##### *PRESIDENT'S CHAMPION MEDAL for best Draught Gelding.*

Alexander Clark, Newton, Markinch, "Avoca."

CLASS 37. DRAUGHT GELDING, foaled before 1907.—Premiums, £10, £5, and £3.

1. Alexander Clark, Newton, Markinch, "Avoca."
2. William Clark, Netherlea, Cathcart, "Captain."
3. Fenwick Wilson, Marden, Whitley Bay, "Monarch."
- V. Scottish Co-operative Wholesale Society, Ltd., 95 Morrison Street, Glasgow, "Bob."
- H. J. & G. E. Easton, Cumleys, Amisfield, R.S.O., "Harry."
- C. John Baty, Heatherly Shank Farm, Fenham, Newcastle-on-Tyne, "Prince."
- C. Dalgety Brothers, Park Place, Dundee, "Glen."

CLASS 38. DRAUGHT GELDING, foaled before 1907.—Premiums, £6, £4, and £3.

1. J. & W. Meiklem, Begg, Kirkcaldy, "Captain."
2. Robert Dawson, Dovehill, Pollokshaws, "Ramper."
3. William Griffiths, Castlesteads, Plumpton, Cumberland, "Sandy."
- V. John Stewart, Saughland, Tynehead, "Dandy."
- C. Weir Bros., Brickhouse, Newabbey Road, Dumfries, "Rabbie Burns."

CLASS 39. DRAUGHT GELDING, foaled in 1908.—Premiums, £6, £4, and £3.

1. Homer Young, Redhills, Dumfries, "Victor."
2. Wm. Clark, Netherlea, Cathcart, "Jamie."
3. George Findlater, Jerviswood Mains, Lanark.
- V. E. & J. Griffiths, Glendowlin, Yanwath, Cumberland, "Harry."
- C. James Lamont, Ingleston, Irongray, Dumfries, "Lochar."
- C. J. & W. Meiklem, Begg, Kirkcaldy, "Bob."

#### DRAUGHT MARES AND FILLIES.

##### *PRESIDENT'S CHAMPION MEDAL for best Clydesdale Mare or Filly.*

Stephen Mitchell of Boquhan, Kippen Station, "Boquhan Lady Peggy."

*Best Clydesdale Mare or Filly registered in the Clydesdale Stud-Book.*

Cawdor Challenge Cup, value 50 guineas, given by the Clydesdale Horse Society.  
Stephen Mitchell of Boquhan, Kippen Station, "Boquhan Lady Peggy."

CLASS 40. MARE of any age, with Foal at foot.—Premiums, £20, £12, £7, and £4.

1. Stephen Mitchell of Boquhan, Kippen Station, "Blossom of Newhouse" (19, 194).
2. William Neilson, Haining Valley, Linlithgow, "Daisy Primrose" (24, 132).
3. D. Y. Stewart, Carse of Trowan, Crieff, "Veronique" (19, 758).
4. Wm. Dunlop, Dunure Mains, Ayr, "Dunure May."
- V. Thomas Kirk, Williamsfield, Auldirth, Dumfries.
- H. A. B. Matthews, Newton-Stewart, N.E., "Alice."

CLASS 41. YELD MARE, foaled before 1907.—Premiums, £12, £9, £6, and £4.

1. Stephen Mitchell of Boquhan, Kippen Station, "Boquhan Lady Peggy."
2. J. E. Kerr of Harviestoun Castle, Dollar, "Nerissa."
3. John P. Sleigh, St John's Wells, Fyvie, "Lucilla."
4. Stephen Mitchell of Boquhan, Kippen Station, "Minniewawa" (21,620).
- V. Robert Chapman, Johnston, Gartcosh, "Winsome Baroness."
- H. James Cameron, Lincluden Mains, Dumfries, "Lady Edward."

CLASS 42. YELD MARE or FILLY, foaled in 1907.—Premiums, £12, £9, £6, and £4.

1. Stephen Mitchell of Boquhan, Kippen Station, Filly, "Thelma II."
2. Stephen Mitchell of Boquhan, Kippen Station, Filly, "Boquhan Beatrice."
3. J. E. Kerr of Harviestoun Castle, Dollar, Filly, "Cicily."
4. J. & G. Dickie, South Cowshaw, Tinwald, Lochmaben, Filly, "Princess Cedric."

CLASS 43. FILLY, foaled in 1908.—Premiums, £12, £9, £6, and £4.

1. John P. Sleigh, St John's Wells, Fyvie, "Moira."
2. Robert Chapman, Johnston, Gartcosh, "Heather Gem."
3. Richard Dunn, Udston Cottage Farm, Hamilton, "Lady Jean."
4. Stephen Mitchell of Boquhan, Kippen Station, "Sweet Melody."
- V. W. M. Wood, Drawdykes Castle, Carlisle, "Lady Cedric."
- H. Duke of Buccleuch and Queensberry, K.G., K.T., of Drumlanrig Castle, Thornhill, "Marjory of Drumlanrig."
- C. Andrew Brooks, North Elphinstone, Tranent, "Lady Diana."

CLASS 44. FILLY, foaled in 1909.—Premiums, £12, £9, £6, and £4.

1. William Dunlop, Dunure Mains, Ayr, "Dunure Myrem."
2. John P. Sleigh, St John's Wells, Fyvie, "Elaine."
3. William Dunlop, Dunure Mains, Ayr, "Dunure Sympathy."
4. Richard Dunn, Udston Cottage Farm, Hamilton, "Lady Lizzie."
- V. William Scott Robertson, Crossrigg, Penrith, "Rose of Crossrigg."
- H. William M'Ewen, Mains of Boquhapple, Thornhill, Perthshire, "Bonny Doune."
- C. John M'Nee, Afton House, Crieff.
- C. John M'Nee, Afton House, Crieff, "Sarah's Favourite."

## HUNTERS.

### PRESIDENT'S CHAMPION MEDAL for best Hunter.

J. H. Stokes, Great Bowden, Market Harboro, Gelding, "Suspense."

*Best Hunter Filly in Classes 45, 46, and 47, registered with a number in the Stud-Book of the Hunter Improvement Society*—Champion Gold Medal, given by the Hunters' Improvement Society.

John M'Kie of Ernespie, Castle-Douglas, Filly, "Lady Ragi."

CLASS 45. COLT, GELDING, or FILLY, foaled in 1909, the produce of thoroughbred Stallions, out of Mares of any breed.—Premiums, £10, £5, and £3.

1. William Lee Carlyle, Templehill, Ecclefechan, Gelding, "Sahib."
2. Lord Ninian Crichton Stuart, House of Falkland, Falkland, Fifeshire, Gelding, "Babarapp."
3. Michael Young, Currock House, Carlisle, Filly.
- V. J. A. Campbell, Craigie House, Ayr, Filly.
- C. J. C. Collingwood, Cornhill House, Cornhill-on-Tweed, Filly.

CLASS 46. FILLY, MARE, or GELDING, for field, foaled in 1908, *in hand*.—Premiums, £10, £5, and £3.

1. Earl of Minto, Minto House, Hawick, Gelding, "Royal Mint" (2936 I.H.S.)
2. Earl of Minto, Minto House, Hawick, Gelding, "Sovereign" (2935 I.H.S.)
3. James Irving, Broomhouses, Lockerbie, Gelding, "Strawberry."
- V. Andrew Rutherford, Brokenhaugh, Haydon Bridge, Northumberland, Gelding, "Silver Fox."
- H. Michael Young, Currock House, Carlisle, Gelding, "Lord Burton."
- C. George F. Bell, Shidlaw, Coldstream, Filly, "Amanda."
- C. Miss Mary A. Dalrymple, Elliston, St Boswells, Filly, "Lola O'Dale" (3529).

CLASS 47. YELD MARE, FILLY, or GELDING, for field, foaled in 1907, *in hand*.—Premiums, £10, £5, and £3.

1. Archibald Kerr, Mouswald, Townhead, Ruthwell, N.B., Gelding, "Mallow."
2. John M'Kie of Ernespie, Castle-Douglas, Filly, "Lady Ragi."
3. Andrew Saunders, Cubby Hill, Longtown, Filly, "Scotch Mist."
- V. Charles E. Galbraith, Terregles, Dumfries, Gelding, "Matchbox."
- H. James Irving, Broomhouses, Lockerbie, Mare, "Miss Mundie."
- C. James Bain, Horse-Cleuch, Cumnock, Gelding, "Cæsar."

*Special Prize of £20 for the best Hunter bred in Scotland, 4 years old and upwards, shown in Classes 48, 49, 50, and 51—given by Royal Caledonian Hunt.*

Charles E. Galbraith, Terregles, Dumfries, Gelding, "Fusee."

*Special Prize of £5 to the breeder of the animal winning above prize—given by Royal Caledonian Hunt.*

Charles E. Galbraith, Terregles, Dumfries.

CLASS 48. MARE or GELDING, foaled before 1906, able to carry 13 st. 7 lb. and over, *in saddle*.—Premiums, £20, £10, and £5.

1. John H. Stokes, Great Bowden, Market Harboro', Gelding, "Gold Flame."
2. Alexander Cross, Langbank, Renfrewshire, Gelding, "Laidlaw."
3. Colonel Williamson of Lawers, Comrie, Perthshire, Gelding, "Khartoom."
- V. Michael Young, Currock House, Carlisle, Gelding, "Sligo."
- H. Colonel Williamson, Lawers, Comrie, Perthshire, Mare, "Mark Time."

CLASS 49. MARE or GELDING, foaled before 1906, able to carry any weight up to 13 st. 7 lb., *in saddle*.—Premiums, £15, £10, and £5.

1. Alex. Cross, Langbank, Renfrewshire, Gelding, "Punchestown 1909."
2. John Roberts, jun., Wellwood Park, Selkirk, Gelding, "Sinnington."
3. E. J. Thomson, Western Club, Glasgow, Gelding, "Peter Pan."
- V. John Dykes, junior, 4 Bute Mansions, Glasgow, Gelding, "Sunbeam."
- H. Major John M'Kie of Ernespie, Castle-Douglas, Mare, "Hermione II."
- C. Thos. & Henry Ward, Pinchinthorpe, Great Ayton, Yorks., Gelding, "Buttevant."

CLASS 50. MARE or GELDING, foaled in 1906, able to carry 13 st. 7 lb. and over, *in saddle*.—Premiums, £15, £10, and £5.

1. J. H. Stokes, Great Bowden, Market Harboro', Gelding, "Suspense."
2. Thos. & Henry Ward, Pinchinthorpe, Great Ayton, Mare, "Vixen II."
3. Archibald Kerr, Mouswald Townhead, Ruthwell, Mare, "Dark Witch."
- V. Alex. Gemmell, 17 Wellington Square, Ayr, Mare, "Lady Maltravers."
- C. Major J. A. Houston Crauford, Borland, Kilmarnock, Gelding, "Grandmaster."

CLASS 51. MARE or GELDING, foaled in 1906, able to carry any weight up to 13 st. 7 lb., *in saddle*.—Premiums, £15, £10, and £5.

1. J. H. Stokes, Great Bowden, Market Harboro', Gelding, "Skellington."
2. Charles E. Galbraith, Terregles, Dumfries, Gelding, "Fusee."
3. William Young, Durham House, Carlisle, Gelding, "Keystone."
- V. William Lee Carlyle, Templehill, Ecclefechan, Gelding, "Kibble."
- H. John Wilson, Edenhall, Langworthy, R.S.O., Gelding, "Lobster."



CLASS 52. HUNTER BROOD MARE, with Foal at foot.—  
Premiums, £15, £8, and £4.

1. Michael Young, Currock House, Carlisle, "Lady Haggerty."
2. Thos. & Henry Ward, Pinchinthorpe, Great Ayton, Yorkshire, "Marigold."
3. William Young, Durham House, Carlisle, "Goldfinch."
- V. Miss Mary A. Dalrymple, Elliston, St Boswells, "Damsel II." (3359).
- H. C. Randolph Dudgeon, Cargen Holm, Dumfries, "Honeymoon II."

HACKNEYS.

(ALL SHOWN IN HAND.)

*PRESIDENT'S CHAMPION MEDAL for best Hackney.*

Arthur William Hickling, Adbolton, Nottingham, "Adbolton St Paul" (10,052).

*Best Mare or Filly in Hackney or Pony Classes*—Champion Prize of £10, or a Gold Medal of the same value, at the option of the Exhibitor, given by the Hackney Horse Society.

Walter Briggs, Burley Hall, Burley in Wharfedale, Yorkshire, "Albin Ophelia" (20,474).

CLASS 53. BROOD MARE, 15 hands and upwards, with Foal at foot or to foal this season to a registered sire. Registered in the Hackney Stud-Book.—Premiums, £10, £6, and £4.

No Entry.

CLASS 54. BROOD MARE, under 15 hands, with Foal at foot or to foal this season to a registered sire. Registered in the Hackney Stud-Book.—Premiums, £10, £6, and £4.

1. W. W. Rycroft, Drake Hill Stud Farm, Bingley, Yorks., "Angeline" (19,739).
2. J. W. Mackie Adamson, Duncrevie, Glenfarg, "Leading Lady" (12,046).
3. Robert Richardson, Dalton Hook, Lockerbie, "Pahshindoo" (17,638).

CLASS 55. YELD MARE or FILLY, foaled in 1907. Registered in the Hackney Stud-Book.—Premiums, £8, £5, and £3.

1. Peter Ballantyne, 9 M'Farlane Street, Glasgow, Filly, "Almona" (20,478).
2. J. W. Mackie Adamson, Duncrevie, Glenfarg, Filly, "Adderley Primrose" (19,726).

CLASS 56. FILLY, foaled in 1908. Registered in the Hackney Stud-Book.—Premiums, £8, £5, and £3.

1. Walter Briggs, Burley Hall, Burley in Wharfedale, Yorkshire, "Albin Ophelia" (20,474).
  2. Dalton A. Engel, Hemlington Park, Marton, S. O. Yorks., "Hemlington-Go-Bang" (20,738).
  3. Enoch Glen, Fallside Hackney and Pony Stud, Bathgate, "Glenavon Lady Commerce."
- Robert Provan, Berelands, Rutherglen, "Berelands Bella."

CLASS 57. FILLY, foaled in 1909, eligible for entry in the Hackney Stud-Book.—Premiums, £8, £5, and £3.

1. W. W. Rycroft, Drake Hill Stud Farm, Bingley, Yorks., "Heaton Aquila."
2. Jack Dove, Tower Rais, Barrhead, "Tower Rais Queen."
3. Stephen Mitchell of Boquhan, Kippen Station, "Boquhan Lily."

CLASS 58. STALLION, foaled in or before 1907, over 15 hands. Registered in the Hackney Stud-Book.—Premiums, £10, £6, and £4.

1. Arthur William Hickling, Adbolton, Nottingham, "Adbolton St Paul" (10,052).
2. W. W. Rycroft, Drake Hill Stud Farm, Bingley, Yorks., "Heaton Performer" (11,063).

CLASS 59. STALLION, foaled in or before 1907, over 14 and not over 15 hands. Registered in the Hackney Stud-Book.—Premiums, £10, £6, and £4.

1. Robert Scott, Thornhome, Carluke, N.B., "Flash Mathias."
2. George R. Watson, Parkhead Cross, Glasgow, "Chippendale" (10,983).

CLASS 60. ENTIRE COLT, foaled in 1908. Registered in the Hackney Stud-Book.—Premiums, £8, £5, and £3.

1. Enoch Glen, Fallside Hackney and Pony Stud, Bathgate, "Sprightly Danegelt" (11,221).
2. Hugh Parker, Boreland, Castle-Douglas, "Dee Pearl" (11,006).
3. Archibald Bowman, Balgonie, Cardenden, "Balgonie Mathias."

CLASS 61. ENTIRE COLT, foaled in 1909, eligible for entry in the Hackney Stud-Book.—Premiums, £8, £5, and £3.

1. Walter Briggs, Burley Hall, Burley in Wharfedale, Yorkshire, "Albin Zeus."
2. William Wilson, Ellaslea, Dollar, "Peter Pan."
3. J. W. Mackie Adamson, Duncrevie, "Duncrevie Dandy."
- H. Hugh Crawford, 78 Cotton Street, Castle-Douglas, "York Despatch."

## PONIES.

### *PRESIDENT'S CHAMPION MEDAL for best Pony.*

J. E. Kerr, Harviestoun Castle, Dollar, "Johnnie Cope" (10,278).

CLASS 62. STALLION, 3 years old and upwards, 14 hands and under, *in hand*.—Premiums, £5, £3, and £2.

1. J. E. Kerr, Harviestoun Castle, Dollar, "Johnnie Cope" (10,278).
2. Enoch Glen, Fallside Hackney and Pony Stud, Bathgate, "Torchfire" (9472).

CLASS 63. YELD MARE, FILLY, or GELDING, 3 years old and upwards, over 13 and not over 14 hands, *in saddle*.—Premiums, £5, £3, and £2.

1. Jack Dove, Tower Rais, Barrhead, Gelding, "Tower Rais Adept" (16,005).
2. Enoch Glen, Fallside Hackney and Pony Stud, Bathgate, Mare, "Monafly" (17,593).
3. J. E. Kerr, Harviestoun Castle, Dollar, Mare, "Harviestoun Rone" (19,951).
- H. William Murray, Murraythwaite, Ecclefechan, Mare, "Brownie's Farewell."
- C. William Murray, Murraythwaite, Ecclefechan, Mare, "Sprite."

CLASS 64. YELD MARE, FILLY, or GELDING, 3 years old and upwards, over 12 and not over 13 hands, *in saddle*.—Premiums, £5, £3, and £2.

1. Enoch Glen, Fallside Hackney and Pony Stud, Bathgate, Mare, "Glenavon"

CLASS 65. YELD MARE, FILLY, or GELDING, 8 years old and upwards, 12 hands and under, *in hand*.—Premiums, £5, £3, and £2.

No Entry.

## HIGHLAND PONIES.

### *PRESIDENT'S CHAMPION MEDAL for best Highland Pony.*

The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Lady Jean" (1915).

CLASS 66. HIGHLAND PONY STALLION, 3 years old or upwards, not exceeding 14.2 hands, entered or accepted for entry in the Highland Section of the Polo Pony Stud-Book.—Premiums, £10, £3, and £2.

1. R. L. Thomson of Eigg and Strathaird, Eigg, by Oban, "Claymore" (6207).
2. Herbert Straker, Hartforth Grange, Richmond, Yorks., "Bonredale" (6342).
3. Sir Edward Stewart-Richardson, Bart., Pitfour Castle, Perth, "Tongue" (434).
- V. Charles D. M. Ross, Ibert, Crieff, "Duncan" (466).
- H. J. H. Munro Mackenzie of Calgary, Isle of Mull, "Hydros" (4894).

CLASS 67. HIGHLAND PONY ENTIRE COLT, foaled in 1908 or 1909.—  
Premiums, £10, £8, and £2.

1. The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Blair Laddie" (453).
2. John Macdonald, Glenbrittle, Portree, "Coruisk."
3. Charles D. M. Ross, Ibert, Crieff, "Grimsay" (467).

CLASS 68. HIGHLAND PONY MARE, 3 years old or upwards, not exceeding 14.2 hands, Yeld or with Foal at foot, entered or accepted for entry in the Highland Section of the Polo Pony Stud-Book.—Premiums, £10, £8, and £2.

1. The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Lady Jean" (1915).
2. William Dalziel Mackenzie of Farr, Daviot, Inverness, "Brae of Farr."
3. C. W. Dyson Perrins of Ardross, Alness, "Kate."
- V. J. H. Munro Mackenzie of Calgary, Isle of Mull, "Black Bess" (aged) (1838).
- H. Sir Edward Stewart-Richardson, Bart., Pitfour Castle, Perth, "Beulah" (1995).
- C. Roderick Maclean, Gometra, Aros, Mull, "Morag."

### SHETLAND PONIES.

(ALL SHOWN IN HAND.)

#### PRESIDENT'S CHAMPION MEDAL for best Shetland Pony.

William Mungall of Transy, Dunfermline, "Silverton of Transy."

*Group of Shetland Ponies, consisting of Mare and two of her progeny exhibited in the Ordinary Classes, and entered or eligible for entry in the Shetland Pony Stud-Book—Special Prize, value £10, given by the President of the Shetland Pony Stud-Book.*

George A. Miller, Lawmuir, Methven, "Harriet" (1194).

*Special Cup, value £5, 5s. for Shetland Pony of either sex, best suited for saddle, drawn from the Shetland Pony Classes, and judged by the judge of Hunters—shown in hand—given by the President of the Shetland Pony Stud-Book.*

R. W. R. Mackenzie, Earlsball, Leuchars, "Boadicea" (998).

*Silver Medal for Best Shetland Pony exhibited in ordinary Classes, of opposite sex to the winner of the President's Champion Medal—given by the President of the Shetland Pony Stud-Book.*

R. W. R. Mackenzie, Earlsball, Leuchars, "Boadicea" (998).

CLASS 69. STALLION, not exceeding 10½ hands, foaled before 1907.—  
Premiums, £5, £4, £3, and £2.

1. William Mungall of Transy, Dunfermline, "Silverton of Transy."
2. R. W. R. Mackenzie, Earlsball, Leuchars, "Helmet of Earlsball" (408).
3. William Mathewson, Comrie Castle, East Grange Station, Fifeshire, "Dvorak" (375).
4. Charles Douglas of Auchlochan, Lesmahagow, "Behemoth of Auchlochan."
- V. Miss Mary H. C. Nicol, Roscobie, Banchory, N.B., "Taffner" (449).
- H. George A. Miller, Lawmuir, Methven, "Mirthful of Earlsball."
- C. Gordon M. N. Pattie, Buccleuch Street, Dumfries, "Jack of Balmanno" (369).

CLASS 70. ENTIRE COLT, not exceeding 10½ hands, foaled in 1907 or 1908.—  
Premiums, £5, £4, £3, and £2.

1. William Mungall of Transy, Dunfermline, "Selwood of Transy."
2. William Mungall of Transy, Dunfermline, "Silver Star of Transy."
3. George A. Miller, Lawmuir, Methven, "Hotspur."
4. Miss Mary H. C. Nicol, Roscobie, Banchory, "Roscobie Merlin."
- V. Charles Douglas of Auchlochan, Lesmahagow, "Buccaneer of Auchlochan."
- H. Charles Douglas of Auchlochan, Lesmahagow, "Neil Gow."

CLASS 71. MARE, not exceeding 10½ hands, with Foal at foot.—  
Premiums, £5, £4, £3, and £2.

1. R. W. R. Mackenzie, Earlsall, Leuchars, "Boadicea" (998).
2. William Mungall of Transy, Dunfermline, "Thoralind" (2240).
3. William Mungall of Transy, Dunfermline, "Danish Queen" (1424).
4. Francis N. M. Gourlay, Broomfield, Moniaive, Dumfriesshire, "Delia" (2327).
5. Charles Douglas of Auchlochan, Lesmahagow, "Belinda of Auchlochan" (1823).
6. Miss Crabbie, Blairhoyle, Ruskie, Perthshire, "Inga" (1492).
7. R. W. R. Mackenzie, Earlsall, Leuchars, "Blanche" (1951).

CLASS 72. YELD MARE, not exceeding 10½ hands.—  
Premiums, £5, £4, £3, and £2.

1. William Mungall of Transy, Dunfermline, "Perfection" (1489).
2. William Mungall of Transy, Dunfermline, "Thistle" (1115).
3. George A. Miller, Lawmuir, Methven, "Harriet" (1194).
4. William Mathewson, Comrie Castle, East Grange Station, Fifeshire, "Minutia" (2199).
5. Colonel Smythe, Methven Castle, Perth, "Maid of Methven."

CLASS 73. FILLY, not exceeding 10½ hands, foaled in 1907 or 1908.—  
Premiums, £5, £4, £3, and £2.

1. William Mungall of Transy, Dunfermline, "Bramhope Veno."
2. William Mungall of Transy, Dunfermline, "Perilla of Transy."
3. Charles Douglas of Auchlochan, Lesmahagow, "Petronella of Auchlochan."
4. R. W. R. Mackenzie, Earlsall, Leuchars, "Banshee of Earlsall."
5. Colonel Smythe, Methven Castle, Perth, "Virgin of Methven."
6. R. W. R. Mackenzie, Earlsall, Leuchars, "Brightness of Earlsall"
7. George A. Miller, Lawmuir, Methven, "Bonbon."

#### DRIVING COMPETITIONS.

*PRESIDENT'S CHAMPION MEDAL for best animal in the Classes for  
Horses in Harness.*

J. E. Kerr, Harviestoun Castle, Dollar, Mare, "Broxton Geltlette" (16,494).

CLASS 74. YELD MARE, FILLY, or GELDING, any age, in Harness, 15 hands  
and upwards, to be driven in the ring.—Premiums, £10, £5, and £3.

1. J. E. Kerr, Harviestoun Castle, Dollar, Mare, "Broxton Geltlette" (16,494).
2. Robert Black, Dringhouses, York, Mare, "Crayke Fairy" (19,020).
3. Captain Gordon, Combscauseway, Insch, Gelding, "Bydand."
4. Dalton A. Engel, Hemlington Park, Marton, S.O., Yorkshire, Mare, "Seaham Orchid" (19,514).

CLASS 75. YELD MARE, FILLY, or GELDING, any age, in Harness, under  
15 hands, to be driven in the ring.—Premiums, £10, £5, and £3.

1. Jack Dove, Tower Rais, Barrhead, Gelding, "Tissington Royalist" (9946).
2. Enoch Glen, Fallside Hackney and Pony Stud, Bathgate, Mare, "Glenaston Surprise."
3. Captain Gordon, Combscauseway, Insch, Gelding, "Bide-a-Wee."

*Special Prize for best Pony in Class 75 under 15 hands—£5.*

Jack Dove, Tower Rais, Barrhead, Gelding, "Tissington Royalist" (9946).

## JUMPING COMPETITIONS

*Wednesday, 20th July.*

CLASS 1. HORSE or PONY, any height.—Premiums, £20, £15, £10, £5, and £3.

1. F. V. Grange, Alvaston, Nantwich, Cheshire, Gelding, "Rufus."
2. Simon Andrews & Sons, Cardonald Grain Mills, Paisley, Gelding, "Ping Pong."
3. T. & H. Ward, Pinchinthorpe, Great Ayton, Gelding, "Fisherman."
4. Ernest Bradley, Newton, Great Ayton, Yorkshire.
5. Ernest Bradley, Newton, Great Ayton, Yorkshire.

*Thursday, 21st July.*

CLASS 2. HORSE or PONY, any height, Handicap, hurdles and gate being raised 8 inches for the winner of the first prize, and 4 inches for the winner of the second prize in Class 1.—Premiums, £10, £8, £5, £3, and £2.

1. F. V. Grange, Alvaston, Nantwich, Cheshire, Gelding, "Rufus."
2. E. G. Easterby, Mount Pleasant, Escrick, Yorkshire, Gelding, "Piper."
3. Simon Andrews & Sons, Cardonald Grain Mills, Paisley, Gelding, "Ping Pong."
4. William Trail, Riding Academy, Aberdeen, Mare, "Hiawatha."
5. Ernest Bradley, Newton, Great Ayton, Yorkshire, Mare, "Greylight."

*Friday, 22nd July.*

CLASS 3. HORSE or PONY, any height, Handicap, hurdles and gate being raised 8 inches for the winner of the first prize, and 4 inches for the winner of the second prize in either of Classes 1 or 2—4 inches extra for the winner of the two first prizes in Classes 1 and 2.—Premiums, £10, £8, £5, £3, and £2.

1. Ernest Bradley, Newton, Great Ayton, Yorkshire, Mare, "Greylight."
2. James Beveridge, Commercial Hotel Stables, Dumfries, Mare, "Claro."
3. William Dawson, Greystone House, Stainton, Penrith, Gelding.
4. E. G. Easterby, Mount Pleasant, Escrick, Yorkshire, Gelding, "Piper."
5. Ernest Bradley, Newton, Great Ayton, Yorkshire, Gelding, "Pat."

*Champion Prize for most points in Prizes with one or more Horses in above Classes—*  
First Prize to count five points; Second Prize, four points; Third Prize, three points; Fourth Prize, two points; and Fifth Prize, one point. The money to be evenly divided in the event of a tie.—Premium, £10.

F. V. Grange, Alvaston, Nantwich, Cheshire.  
Ernest Bradley, Newton, Great Ayton, Yorkshire. } equal.

## SHEEP

## BLACKFACE.

*PRESIDENT'S CHAMPION MEDAL for best pen of Blackface Sheep.*

Charles Howatson, of Glenbuck, Glenbuck, N.B.

CLASS 76. TUP, above one Shear.—Premiums, £12, £8, £4, and £2.

1. John Robson, Newton, Bellingham, "Sir Matthew."
2. James M'L. Marshall of Bleaton, Blairgowrie.
3. Cadzow Brothers, Borland, Dunsyre, Carstairs Junction.
4. James Clark, Crossflatt, Muirkirk.
5. Christopher Culley, West Ditchburn, Alnwick, "Middleton."
- H. Octavius Monkhouse, Cowshill, Wearhead, Co. Durham, "Sir Henry."
- C. M. G. Hamilton, Woolfords, Cobbinshaw.

## CLASS 77. SHEARLING TUP.—Premiums, £12, £8, £4, and £2.

1. Charles Howatson of Glenbuck, Glenbuck, N.B.
2. Hugh Cameron, Easter Causewayend, Kirknewton, Midlothian.
3. Cadzow Brothers, Borland, Dunsyre, Carstairs Junction.
4. D. M'Dougall, Claggan, Ardtalnaig, Loch Tay.
- V. M. G. Hamilton, Woolfords, Cobbinshaw.
- H. A. P. M'Dougall, High Craigton, Milngavie.
- C. James Clark, Crossflatt, Muirkirk.
- C. Charles Howatson of Glenbuck, Glenbuck, N.B.

CLASS 78. EWE, above one Shear, with her Lamb at foot.—  
Premiums, £10, £5, and £2.

1. John Robson, Newton, Bellingham.
2. John Robson, Newton, Bellingham.
3. John M'G. Wilson, Cairnholy, Creetown.
- V. James Clark, Crossflatt, Muirkirk.
- H. Charles Howatson of Glenbuck, Glenbuck, N.B.
- C. James Clark, Crossflatt, Muirkirk.
- C. Charles Howatson of Glenbuck, Glenbuck, N.B.

## CLASS 79. SHEARLING EWE or GIMMER.—Premiums, £10, £5, and £2.

1. Cadzow Brothers, Borland, Dunsyre, Carstairs Junction.
2. John Robson, Newton, Bellingham.
3. Donald M. MacRae of Stenhouse, Thornhill, Dumfriesshire.
- V. Octavius Monkhouse, Cowshill, Wearhead, Co. Durham, "Geb-o-Bents."
- H. John Robson, Newton, Bellingham.
- C. Robert Buchanan, Blairquhosh, Blanehead.
- C. John Robson, Newton, Bellingham.

## CLASS 80. TUP LAMB, bred by Exhibitor, from a Ewe bred by and never out of his possession.—Prizes, £4, £3, £2, and £1, given by Mr Charles Howatson of Glenbuck.

1. Cadzow Brothers, Borland, Dunsyre, Carstairs Junction.
2. John Robson, Millknowe, Duns.
3. Charles Howatson of Glenbuck, Glenbuck, N.B.
4. Charles Howatson of Glenbuck, Glenbuck, N.B.

## CHEVIOT.

*PRESIDENT'S CHAMPION MEDAL for best Pen of Cheviot Sheep.*

John Robson, Millknowe, Duns.

*Perpetual Challenge Cup, gifted by Mr Borthwick, value £25, for best Sheep in the Cheviot Classes,—given by the Cheviot Sheep Society.*

John Robson, Millknowe, Duns.

## CLASS 81. TUP, above one Shear.—Premiums, £12, £8, £4, and £2.

1. John Elliot, Hindhope, Jedburgh, "Hindhope Comet."
2. Dobson & Murray, Parkhall, Douglas, Lanarkshire, "Apollo."
3. Representatives of the late Walter Elliot, Myreidykes and Lingdean, Kirndeane, Newcastleton, "Darby."
4. J. R. C. Smith, Mowhaugh, Yetholm, N.B.
- V. J. R. C. Smith, Mowhaugh, Yetholm, N.B.

## CLASS 82. SHEARLING TUP.—Premiums, £12, £8, £4, and £2.

1. John Robson, Millknowe, Duns.
2. J. R. C. Smith, Mowhaugh, Yetholm, N.B.
3. John Elliot, Hindhope, Jedburgh.
4. Dobson & Murray, Parkhall, Douglas, Lanarkshire.
- V. Jacob Robson, Byrness, Otterburn, Northumberland.
- H. John Elliot, Hindhope, Jedburgh.
- C. Dobson & Murray, Parkhall, Douglas, Lanarkshire.
- C. John Robson, Millknowe, Duns.

CLASS 83. EWE, above one Shear, with her Lamb at foot.—  
Premiums, £10, £5, and £2.

1. Jacob Robson, Byrness, Otterburn, Northumberland.
2. John Robson, Millknowe, Duns.
3. J. R. C. Smith, Mowhaugh, Yetholm, N.B.
- V. John Elliot, Hindhope, Jedburgh.
- H. John Robson, Millknowe, Duns.

CLASS 84. SHEARLING EWE or GIMMER.—Premiums, £10, £5, and £2.

1. John Robson, Millknowe, Duns.
2. Jacob Robson, Byrness, Otterburn, Northumberland.
3. John Elliot, Hindhope, Jedburgh.
- V. Jacob Robson, Byrness, Otterburn, Northumberland.
- H. John Robson, Millknowe, Duns.

### BORDER LEICESTER.

*PRESIDENT'S CHAMPION MEDAL for best Pen of Border Leicesters.*

Archibald Cameron & Sons, Westside Farm, Brechin.

*Tweeddale Gold Medal for best Border Leicester Tup.*

William Robson, Low Hedgeley, Alnwick.

*Gold Medal for best Animal in the Border Leicester Classes, registered or eligible for registration in the Border Leicester Flock-Book,—given by the Society of Border Leicester Sheep-Breeders.*

Archibald Cameron & Sons, Westside Farm, Brechin.

CLASS 85. TUP, above one Shear.—Premiums, £12, £8, £4, and £2.

1. R. G. Murray, Spittal, Biggar, "Knockdon Stamp" (2577).
2. J. & J. R. C. Smith, Galalaw, Kelso.
3. J. Evelyn Carr, Heathery Tops, Scremerston, Berwick-on-Tweed, "King Cole."
4. James Campbell & Sons, Illieston, Mid-Calder, "General Campbell."
- H. J. & J. Calder, Ardargie, Forgandenny, "Ardargie Prince" (1976).

CLASS 86. SHEARLING TUP.—Premiums, £12, £8, £4, and £2.

1. William Robson, Low Hedgeley, Alnwick.
2. John Kinnaird, jun., Newmains, Stenton, Prestonkirk.
3. Robert Wallace, Auchenbrain, Mauchline.
4. J. & J. R. C. Smith, Galalaw, Kelso.
- V. J. D. Hay, Glenearn, Bridge of Earn, Perth.
- H. David P. Elliot, Nisbet Hill, Duns.
- C. William Robson, Low Hedgeley, Alnwick.

CLASS 87. EWE, above one Shear.—Premiums, £10, £5, and £2.

1. David P. Elliot, Nisbet Hill, Duns.
2. James Findlay, Newmilln of Craigeassie, Forfar.
3. J. Evelyn Carr, Heathery Tops, Scremerston, Berwick-on-Tweed.
- V. David P. Elliot, Nisbet Hill, Duns.
- H. R. G. Murray, Spittal, Biggar.
- C. Archibald Cameron & Sons, Westside Farm, Brechin.

CLASS 88. SHEARLING EWE or GIMMER.—Premiums, £10, £5, and £2.

1. Archibald Cameron & Sons, Westside Farm, Brechin.
2. Robert Wallace, Auchenbrain, Mauchline.
3. James Findlay, Newmilln of Craigeassie, Forfar.
- V. R. G. Murray, Spittal, Biggar.
- H. David P. Elliot, Nisbet Hill, Duns.
- C. J. Evelyn Carr, Heathery Tops, Scremerston, Berwick-on-Tweed.
- C. J. D. Hay, Glenearn, Bridge of Earn, Perth.

## HALF-BRED.

*PRESIDENT'S CHAMPION MEDAL for best Pen of Half-Breds.*

James A. W. Mein, Hunthill, Jedburgh.

CLASS 89. TUP, above one Shear.—Premiums, £12, £8, £4, and £2.

1. D. & F. H. Porter, Doddington, Wooler.
2. D. & F. H. Porter, Doddington, Wooler.
3. James H. W. Mein, Hunthill, Jedburgh.

## EXTRA STOCK.

The following was Very Highly Commended, and a Medium Silver Medal awarded—  
James A. W. Mein, Hunthill, Jedburgh.

CLASS 90. SHEARLING TUP.—Premiums, £12, £8, £4, and £2.

1. John Mark, Sunnyside, Prestonkirk.
2. John Mark, Sunnyside, Prestonkirk.
3. John Mark, Sunnyside, Prestonkirk.
4. James A. W. Mein, Hunthill, Jedburgh.
- H. John Mark, Sunnyside, Prestonkirk.

CLASS 91. EWE, above one Shear.—Premiums, £10, £5, and £2.

1. Andrew Rutherford, Pinnacle, Ancrum, N.B.
2. D. & F. H. Porter, Doddington, Wooler.
3. D. & F. H. Porter, Doddington, Wooler.
- V. John Stewart, Saughland, Tynehead.
- H. W. B. Potter, Ashyburn, Ancrum, Roxburghshire.

CLASS 92. SHEARLING EWE or GIMMER.—Premiums, £10, £5, and £2.

1. James A. W. Mein, Hunthill, Jedburgh.
2. R. W. Michael, Corsbie, Earlston, Berwickshire.
3. Andrew Rutherford, Pinnacle, Ancrum, N.B.
- V. John Stewart, Saughland, Tynehead.
- H. James A. W. Mein, Hunthill, Jedburgh.
- C. D. & F. H. Porter, Doddington, Wooler.

## SHROPSHIRE.

*PRESIDENT'S CHAMPION MEDAL for best Pen of Shropshires.*

Thos. A. Buttar, Corston, Coupar-Angus.

CLASS 93. TUP, above one Shear.—Premiums, £6, £4, and £2.

1. Thos. A. Buttar, Corston, Coupar-Angus.

CLASS 94. SHEARLING TUP.—Premiums, £6, £4, and £2.

1. Thos. A. Buttar, Corston, Coupar-Angus.
2. Thos. A. Buttar, Corston, Coupar-Angus.
3. Thos. A. Buttar, Corston, Coupar-Angus.

CLASS 95. EWE, above one Shear.—Premiums, £5, £3, and £2.

1. Thos. A. Buttar, Corston, Coupar-Angus.
2. Thos. A. Buttar, Corston, Coupar-Angus.

CLASS 96. SHEARLING EWE or GIMMER.—Premiums, £5, £3, and £2.

1. Thos. A. Buttar, Corston, Coupar-Angus.
2. Thos. A. Buttar, Corston, Coupar-Angus.



## OXFORD DOWN.

*PRESIDENT'S CHAMPION MEDAL for best Pen of Oxford Downs.*

The Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.

*Best Shearling Oxford-Down Tup in Class 97 bred in Scotland, to be registered in Oxford-Down Flock-Book before prizes will be paid—£5, £3, and £2, given by Oxford-Down Sheep-Breeders' Association.*

1. The Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.
2. The Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.
3. William Elliot, Raecleugh Head, Duns.

## CLASS 97. SHEARLING TUP.—Premiums, £6, £4, and £2.

1. The Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.
2. The Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.
3. William Elliot, Raecleugh Head, Duns.
- V. The Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.
- H. William Elliot, Raecleugh Head, Duns.
- C. William Elliot, Raecleugh Head, Duns.

## CLASS 98. SHEARLING EWE or GIMMER.—Premiums, £5, £3, and £2.

1. The Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.
2. The Right Hon. A. J. Balfour, M.P., Whittingehame, Prestonkirk.

## SUFFOLK.

*PRESIDENT'S CHAMPION MEDAL for best Pen of Suffolk Sheep.*

The Right Hon. Sir Ernest Cassel, G.C.M.G., Moulton Paddocks, Newmarket.

## CLASS 99. SHEARLING TUP.—Premiums, £6, £4, and £2.

1. The Right Hon. Sir Ernest Cassel, G.C.M.G., Moulton Paddocks, Newmarket.
2. Wm. Vivers & Sons, Dornocktown, Annan.
3. T. K. Blackstock, Flatts of Cargen, Dumfries.
- V. Wm. Vivers & Sons, Dornocktown, Annan.

## CLASS 100. SHEARLING EWE or GIMMER.—Premiums, £5, £3, and £2.

1. The Right Hon. Sir Ernest Cassel, G.C.M.G., Moulton Paddocks, Newmarket.
2. Wm. Vivers & Sons, Dornocktown, Annan.
3. William Kennedy, Luce Mains, Ecclefechan.
- V. The Right Hon. Sir Ernest Cassel, G.C.M.G., Moulton Paddocks, Newmarket.

## CLASS 101. TUP LAMB.—Premiums, £5, £3, and £2, given by the Suffolk Sheep Society.

1. The Right Hon. Sir Ernest Cassel, G.C.M.G., Moulton Paddocks, Newmarket.
2. Wm. Vivers & Sons, Dornocktown, Annan.
3. The Right Hon. Sir Ernest Cassel, G.C.M.G., Moulton Paddocks, Newmarket.
- V. William Kennedy, Luce Mains, Ecclefechan.

## CLASS 102. THREE EWE LAMBS.—Premiums, £5, £3, and £2, given by the Suffolk Sheep Society.

1. The Right Hon. Sir Ernest Cassel, G.C.M.G., Moulton Paddocks, Newmarket.
2. Wm. Vivers & Sons, Dornocktown, Annan.
3. William Kennedy, Luce Mains, Ecclefechan.
- V. T. K. Blackstock, Flatts of Cargen, Dumfries.

## FAT SHEEP.

## CLASS 103. THREE FAT LAMBS, any Breed or Cross, dropped in the year of the Show.—Premiums, £5 and £3.

1. Crichton Royal Institution, Crichton Farm, Dumfries (Cross between Border Leicester Tup and Half-bred Ewes).

## SWINE

*PRESIDENT'S CHAMPION MEDAL for best Pen of Swine.*

R. E. W. Stephenson, Tue Brook, Liverpool, "Lady Amy" (25,478).

## LARGE WHITE BREED.

CLASS 104. BOAR, farrowed before 1909.—Premiums, £6, £3, and £2.

1. David W. Gunn, Craigcrook Farm, Blackhall, Edinburgh, "Craigcrook King" (11,609).
2. R. E. W. Stephenson, Tue Brook, Liverpool, "Marchington Herdsman" (10,929).
3. James Wyllie, Mayfield Farm, Stevenston, "Worsley Samson XIII." (12,021).
- V. Thomas Simpson, Duddingston Farm, Portobello, Edinburgh, "Dalmeny Challenger" (10,753).

CLASS 105. BOAR, farrowed in 1909.—Premiums, £6, £3, and £2.

1. David W. Gunn, Craigcrook Farm, Blackhall, Edinburgh, "Craigcrook King II."
2. David W. Gunn, Craigcrook Farm, Blackhall, Edinburgh, "West Derby Czar."

CLASS 106. BOAR, farrowed in 1910.—Premiums, £4, £2, and £1.

1. Thomas Simpson, Duddingston Farm, Portobello, Edinburgh.
2. David W. Gunn, Craigcrook Farm, Blackhall, Edinburgh.
3. David W. Gunn, Craigcrook Farm, Blackhall, Edinburgh.
- V. James Wyllie, Mayfield Farm, Stevenston.

CLASS 107. SOW, farrowed before 1909.—Premiums, £6, £3, and £2.

1. R. E. W. Stephenson, Tue Brook, Liverpool, "Lady Amy" (25,478).
2. James Wyllie, Mayfield Farm, Stevenston, "Mayfield Tiny Mabel" (23,094).
3. Thomas Simpson, Duddingston Farm, Portobello, Edinburgh, "Dalmeny Lady Frost 46th" (20,762).

CLASS 108. SOW, farrowed in 1909.—Premiums, £6, £3, and £2.

1. James Wyllie, Mayfield Farm, Stevenston, "Worsley Hawthorn XLVII."
2. David W. Gunn, Craigcrook Farm, Blackhall, Edinburgh, "Craigcrook Daisy."
3. Thomas Simpson, Duddingston Mains, Portobello, Edinburgh, "Duddingston Marchioness."
- V. R. E. W. Stephenson, Tue Brook, Liverpool, "Wyboston Alicia" (26,702).

CLASS 109. SOW, farrowed in 1910.—Premiums, £4, £2, and £1.

1. Thomas Simpson, Duddingston Farm, Portobello, Edinburgh.
2. Thomas Simpson, Duddingston Farm, Portobello, Edinburgh.
3. James Wyllie, Mayfield Farm, Stevenston.
- V. David W. Gunn, Craigcrook Farm, Blackhall, near Edinburgh.

## BERKSHIRE.

CLASS 110. BOAR, any age.—Premiums, £6, £3, and £2.

1. L. Currie, Minley Manor, Farnborough, Hants, "Compton Supreme" (13,889).
2. J. Jefferson, Willaston, Nantwich, "Crewe Sensation."
3. D. E. Higham, Coombelands, Addlestone, Surrey, "Thoresby Champion Bellman" (14,432).

CLASS 111. BOAR, farrowed in 1910.—Premiums, £4, £2, and £1.

1. J. Jefferson, Willaston, Nantwich.
2. L. Currie, Minley Manor, Farnborough, Hants.
3. L. Currie, Minley Manor, Farnborough, Hants.

CLASS 112. SOW, any age.—Premiums, £6, £3, and £2.

1. L. Currie, Minley Manor, Farnborough, Hants, "Minley Prudence" (13,906).
2. L. Currie, Minley Manor, Farnborough, Hants, "Minley Melody" (13,905).
3. J. Jefferson, Willaston, Nantwich, "Crewe Rosebud."
- V. D. E. Higham, Coombelands, Addlestone, Surrey, "Wyndthorpe Countess" (14,238).

CLASS 113. SOW, farrowed in 1910.—Premiums, £4, £3, and £1.

1. D. E. Higham, Coombelands, Addlestone, Surrey, "Ongar Lenda III."
2. J. Jefferson, Willaston, Nantwich.
3. L. Currie, Minley Manor, Farnborough, Hants.
- V. L. Currie, Minley Manor, Farnborough, Hants.

## POULTRY

First Premium—*One Sovereign*. Second Premium—*Ten Shillings*. Where there are Six or more Entries, Third Premium—*Five Shillings*.

### CHAMPION MEDALS.

#### 1. *Best Cock, any variety.*

Lord Leith of Fyvie, Fyvie Castle, Fyvie.

#### 2. *Best Hen, any variety.*

J. T. Cathcart, Pitcairrie, Prize Poultry Yards, Newburgh, Fife.

#### 3. *Best Cockerel, any variety.*

Weir Bros., Brick House, Newabbey Road, Dumfries (Gold).

#### 4. *Best Pullet, any variety.*

J. Brennand, Baldersby Park, Thirsk, Yorks.

#### 5. *Best Pen of Ducks.*

James Huntly & Son, Hirsel Poultry Farm, Coldstream.

#### 6. *Best Pen of Geese.*

W. Woods, Worksop, Notts (Toulouse).

#### 7. *Best Pen of Turkeys.*

Lord Leith of Fyvie, Fyvie Castle, Fyvie (American Bronze).

### CLASS 1. DORKING—Coloured. Cock.

1. J. Brennand, Baldersby Park, Thirsk, Yorks.
2. John Mechie, Auchtermuchty.
3. James Huntly & Son, Hirsel Poultry Farm, Coldstream.
- V. John Meikle, Camregan, Girvan.
- H. W. Marshall, Glenwhommie, Dunblane.
- C. W. Marshall, Glenwhommie, Dunblane.

### CLASS 2. DORKING—Coloured. Hen.

1. John Meikle, Camregan, Girvan.
2. Charles Aitkenhead, Stud Farm, Seaham Harbour.
3. James Huntly & Son, Hirsel Poultry Farm, Coldstream.
- V. Adam Pettigrew, Bellevue Cottage, Dalmellington.
- H. W. Marshall, Glenwhommie, Dunblane.
- C. J. T. Cathcart, Pitcairrie, Prize Poultry Yards, Newburgh, Fife.

## CLASS 3. DORKING—Coloured. Cockerel.

1. W. Marshall, Glenwhommie, Dunblane.
2. W. Marshall, Glenwhommie, Dunblane.
3. Arthur C. Major, Ditton, Langley, Bucks.
- V. Mrs Hilda H. Farquhar, St Margaret's, Bridge of Weir.

## CLASS 4. DORKING—Coloured. Pullet

1. J. Brennand, Baldersby Park, Thirsk, Yorks.
2. John Meikle, Camregan, Girvan.
3. Charles Aitkenhead, Stud Farm, Seaham Harbour.
- V. Charles Aitkenhead, Stud Farm, Seaham Harbour.
- H. W. Marshall, Glenwhommie, Dunblane.
- C. Arthur C. Major, Ditton, Langley, Bucks.

## CLASS 5. DORKING—Silver Grey. Cock.

1. J. T. Cathcart, Pitcairrie, Prize Poultry Yards, Newburgh, Fife.
2. Charles Aitkenhead, Stud Farm, Seaham Harbour.
- V. J. Brennand, Baldersby Park, Thirsk, Yorks.
- H. Mrs C. Macpherson, Priestwell, Dufftown.

## CLASS 6. DORKING—Silver Grey. Hen.

1. J. T. Cathcart, Pitcairrie Prize Poultry Yards, Newburgh, Fife.
2. J. Brennand, Baldersby Park, Thirsk, Yorks.
- V. John Meikle, Camregan, Girvan.
- H. John Mechie, Auchtermuchty.

## CLASS 7. DORKING—Silver Grey. Cockerel.

1. J. Brennand, Baldersby Park, Thirsk, Yorks.
2. Alexander Low, Keeper's Cottage, Park, Drumoak.
- V. John Mechie, Auchtermuchty.
- H. Arthur C. Major, Ditton, Langley, Bucks.

## CLASS 8. DORKING—Silver Grey. Pullet.

1. J. Brennand, Baldersby Park, Thirsk, Yorks.
2. Arthur C. Major, Ditton, Langley, Bucks.
- V. Alexander Low, Keeper's Cottage, Park, Drumoak.
- H. Alexander Cross of Knockdon, Maybole.

## CLASS 9. BRAHMAPOOTRA or COCHIN-CHINA. Cock.

1. J. T. Cathcart, Pitcairrie Prize Poultry Yards, Newburgh, Fife (Brahma).
2. James Huntly and Son, Hirsell Poultry Farm, Coldstream (Brahma).
- V. Charles Hinshaw, 52 Hill Street, Garnethill, Glasgow (Cochin).
- H. Robert M'Millan, 126 King Street, Kilmarnock (Cochin).

## CLASS 10. BRAHMAPOOTRA or COCHIN-CHINA. Hen.

1. G. C. Taylor, The Grove, Downfield, Dundee (Brahma).
2. Charles Hinshaw, 52 Hill Street, Garnethill, Glasgow (Cochin).
3. G. C. Taylor, The Grove, Downfield, Dundee (Brahma).
- V. Robert M'Millan, 126 King Street, Kilmarnock (Cochin).
- H. James Huntly and Son, Hirsell Poultry Farm, Coldstream (Brahma).

## CLASS 11. BRAHMAPOOTRA or COCHIN-CHINA. Cockerel.

1. Henry Henry, 47 Buccleuch Street, Glasgow (Cochin).
2. Charles Hinshaw, 52 Hill Street, Garnethill, Glasgow (Cochin).

## CLASS 12. BRAHMAPOOTRA or COCHIN-CHINA. Pullet.

1. Robert M'Millan, 126 King Street, Kilmarnock (Brahma).
2. Henry Henry, 47 Buccleuch Street, Glasgow (Cochin).
- V. Charles Hinshaw, 52 Hill Street, Garnethill, Glasgow (Cochin).
- H. Allan Black, jun., 141 High Street, Irvine (Cochin).

## CLASS 13. SCOTCH GREY. Cock.

1. Alexander Ollar, Kilkerran Cottage, Campbeltown.
2. William Ramsay, Muirhouse Cottage, Crosshouse, by Kilmarnock.
3. Alexander Ollar, Kilkerran Cottage, Campbeltown.
- V. William Ramsay, Muirhouse Cottage, Crosshouse, by Kilmarnock.
- H. Alexander Ollar, Kilkerran Cottage, Campbeltown.

## CLASS 14. SCOTCH GREY. Hen.

1. Alexander Ollar, Kilkerran Cottage, Campbeltown.
2. William Ramsay, Muirhouse Cottage, Crosshouse, by Kilmarnock.
3. Alexander Ollar, Kilkerran Cottage, Campbeltown.
- V. Alexander Ollar, Kilkerran Cottage, Campbeltown.
- H. John Smith, Netherholm House, Kirkmahoe, Dumfries.
- C. John Smith, Netherholm House, Kirkmahoe, Dumfries.

## CLASS 15. SCOTCH GREY. Cockerel.

1. John Retson, Langside, Lanark.
2. William Ramsay, Muirhouse Cottage, Crosshouse, by Kilmarnock.
3. Mrs Hastings, Glaister Cottage, Darvel.
- V. William Ramsay, Muirhouse Cottage, Crosshouse, by Kilmarnock.
- H. William Moncur, Dunlop Street, Stewarton.
- C. James Gegg, Castle Campbell, Dollar.

## CLASS 16. SCOTCH GREY. Pullet.

1. Mrs Hastings, Glaister Cottage, Darvel.
2. William Ramsay, Muirhouse Cottage, Crosshouse, by Kilmarnock.
3. William Moncur, Dunlop Street, Stewarton.
- V. James Andrew, Broadlie, Neilston.
- H. John Retson, Langside, Lanark.
- C. James Gegg, Castle Campbell, Dollar.

## CLASS 17. HAMBURG—Black. Cock.

1. Charles E. Pickles, Kayfield House, Earby.
2. Charles E. Pickles, Kayfield House, Earby.
- V. James Huntly & Son, Hirsell Poultry Farm, Coldstream.

## CLASS 18. HAMBURG—Black. Hen.

1. Charles E. Pickles, Kayfield House, Earby.
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream.

## CLASS 19. HAMBURG—Any other Variety. Cock.

1. Charles E. Pickles, Kayfield House, Earby (Silver Pencil).
2. David Govan, Lilybank, Stonehouse, Lanarkshire (Silver Spangle).
- V. Chas. E. Pickles, Kayfield House, Earby (Silver Spangle).
- H. William MacCaa, sen., Garrallan, Old Cumnock (Golden Pencil).

## CLASS 20. HAMBURG—Any other Variety. Hen.

1. David Govan, Lilybank, Stonehouse, Lanarkshire (Silver Spangle).
2. Chas. E. Pickles, Kayfield House, Earby (Silver Spangle).
- V. Charles E. Pickles, Kayfield House, Earby (Silver Spangle).

## CLASS 21. HAMBURG—Any Variety. Cockerel.

1. Chas. E. Pickles, Kayfield House, Earby (Silver Spangle).
2. W. Bentley, Timinette, Honley, nr. Huddersfield (Black).
- V. David Govan, Lilybank, Stonehouse, Lanarkshire (Silver Spangle).
- H. David Govan, Lilybank, Stonehouse, Lanarkshire (Black).

## CLASS 22. HAMBURG—Any Variety. Pullet.

1. Charles E. Pickles, Kayfield House, Earby (Black).
2. David Govan, Lilybank, Stonehouse, Lanarkshire (Black).
- V. David Govan, Lilybank, Stonehouse, Lanarkshire (Silver Spangle).
- H. Charles E. Pickles, Kayfield House, Earby (Black).

## CLASS 23. PLYMOUTH ROCK. Cock.

1. Lord Leith of Fyvie, Fyvie Castle, Fyvie.
2. John Meikle, Camregan, Girvan.
3. Mrs M'Adam, Kirkland Street, Dalry, Galloway.
- V. William Bremner, Station Road, Windygates, Fife.
- H. Robert Cubby, Moorville, Carlisle.

## CLASS 24. PLYMOUTH ROCK. Hen.

1. Andw. Leitch, The Cottage, Cameron Bridge, Windygates.
2. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
3. Andw. Leitch, The Cottage, Cameron Bridge, Windygates.
- V. James Campbell, Boys' School, St Leonard's Road, Ayr.

## CLASS 25. PLYMOUTH ROCK. Cockerel.

1. Lord Leith of Fyvie, Fyvie Castle, Fyvie.
2. J. Brennand, Baldersby Park, Thirsk, Yorks.
- V. Robert Muir, Sandyford, Monkton.
- H. Miss I. R. Curle, St Cuthbert's, Melrose.

## CLASS 26. PLYMOUTH ROCK. Pullet.

1. James Bateman, Milnthorpe, Westmoreland.
2. Lord Leith of Fyvie, Fyvie Castle, Fyvie.
3. J. Brennand, Baldersby Park, Thirsk, Yorks.
- V. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
- H. Robert Muir, Sandyford, Monkton.
- C. Robert Muir, Sandyford, Monkton.

## CLASS 27. MINORCA. Cock.

1. W. M. Reid, Lucknow Barry, Carnoustie.
2. William Binnie, Woodlands, Kilsyth.
3. Josiah Wright, Locharbriggs, Dumfries.
- V. John W. Matheson, Freeland, Gateside, Fife.
- H. William Binnie, Woodlands, Kilsyth.
- C. J. Ewart M'Jarrow, Lockerbie.

## CLASS 28. MINORCA. Hen.

1. John Graham, Kirkfield, Lanark.
2. Weir Brothers, Brick House, Newabbey Road, Dumfries.
3. James Douglas, 11 Loreburn Street, Dumfries.
- V. James Dickson, Gillhead, Kirkbean, Dumfries.
- H. Robert Mitchell, Fowler Farm, Mauchline.
- C. Josiah Wright, Locharbriggs, Dumfries.

## CLASS 29. MINORCA. Cockerel.

1. John W. Matheson, Freeland, Gateside, Fife.
2. Weir Bros., Brick House, Newabbey Road, Dumfries.
3. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
- V. Robert Mitchell, Fowler Farm, Mauchline.
- H. Weir Bros., Brick House, Newabbey Road, Dumfries.

## CLASS 30. MINORCA. Pullet.

1. Alexander Binnie, jun., Barrwood, Kilsyth.
2. Robert Mitchell, Fowler Farm, Mauchline.
3. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
- V. Weir Bros., Brick House, Newabbey Road, Dumfries.
- H. Weir Bros., Brick House, Newabbey Road, Dumfries.

## CLASS 31. LEGHORN—White. Cock.

1. Weir Bros., Brick House, Newabbey Road, Dumfries.
2. Charles E. Pickles, Kayfield House, Earby.
- V. John W. Matheson, Freeland, Gateside, Fife.
- H. Weir Bros., Brick House, Newabbey Road, Dumfries.
- C. James D. Alexander, 59 Ann Street, Greenock.

## CLASS 32. LEGHORN—White. Hen.

1. Evelyn Ross, Commercial Hotel, Larbert.
2. William H. Steven, Woodend, Helensburgh.
3. Weir Bros., Brick House, Newabbey Road, Dumfries.
- V. James Borland, jun., Meadow View, Irvine.
- H. James Borland, jun., Meadow View, Irvine.
- C. Weir Bros., Brick House, Newabbey Road, Dumfries.

## CLASS 33. LEGHORN—White. Cockerel.

1. Weir Bros., Brick House, Newabbey Road, Dumfries.
2. Weir Bros., Brick House, Newabbey Road, Dumfries.

## CLASS 34. LEGHORN—White. Pullet.

1. Weir Bros., Brick House, Newabbey Road, Dumfries.
2. J. C. Ross, Stirling Road, Larbert.
3. Weir Bros., Brick House, Newabbey Road, Dumfries.
- V. J. C. Ross, Stirling Road, Larbert.
- H. James Borland, jun., Meadow View, Irvine.
- C. James Borland, jun., Meadow View, Irvine.

## CLASS 35. LEGHORN—Any other Variety. Cock.

1. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs. (Brown).
2. Andrew Leitch, The Cottage, Cameron Bridge, Windygates (Black).
- V. Weir Bros., Brick House, Newabbey Road, Dumfries (Brown).
- H. Robert Durward, Dunecht, Aberdeenshire (Brown).

## CLASS 36. LEGHORN—Any other Variety. Hen.

1. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs. (Brown).
2. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs. (Black).
3. W. Woodmass, Howard House, Gilsland, nr. Carlisle (Black).
- V. William Forbes, 1 Barry Road, Carnoustie (Buff).
- H. Weir Bros., Brick House, Newabbey Road, Dumfries (Brown).
- C. Robert Durward, Dunecht, Aberdeenshire (Brown).

## CLASS 37. LEGHORN—Any other Variety. Cockerel.

1. John W. Matheson, Freeland, Gateside, Fife (Brown).
2. John W. Matheson, Freeland, Gateside, Fife (Brown).
3. Weir Bros., Brick House, Newabbey Road, Dumfries (Brown).
- V. Weir Bros., Brick House, Newabbey Road, Dumfries (Brown).
- H. Robert Durward, Dunecht, Aberdeenshire (Brown).

## CLASS 38. LEGHORN.—Any other Variety. Pullet.

1. John W. Matheson, Freeland, Gateside, Fife (Brown).
2. John W. Matheson, Freeland, Gateside, Fife (Brown).
3. William Reid & Son, 87 Graham Street, Airdrie (Black).
- V. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs. (Brown).
- H. Robert Durward, Dunecht, Aberdeenshire (Brown).
- C. Weir Bros., Brick House, Newabbey Road, Dumfries (Brown).

## CLASS 39. LANGSHAN. Cock.

1. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
2. Richardson Bros., Muir, Bannockburn.

## CLASS 40. LANGSHAN. Hen.

1. Andrew Stillie, Ettrick Road, Selkirk.
2. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
- V. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
- H. Richardson Bros., Muir, Bannockburn.
- C. Richardson Bros., Muir, Bannockburn.

## CLASS 41. LANGSHAN. Cockerel.

1. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.

## CLASS 42. LANGSHAN. Pullet.

1. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
2. Ben. Wilkinson, Hipperholm, Yorks.
- V. Richardson Bros., Muir, Bannockburn.

## CLASS 43. ORPINGTON—Black. Cock.

1. D. R. Bone, Fenwickland, Ayr.
2. David Reid, Firthview, Portgordon.
3. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
- V. J. T. Cathcart, Pitcairrie Prize Poultry Yards, Newburgh, Fife.
- H. Lady Pearson of Dunecht, Aberdeenshire.
- C. William Morgan, Balcurvie, Windygates, Fife.

## CLASS 44. ORPINGTON—Black. Hen.

1. David Reid, Firthview, Portgordon.
2. D. R. Bone, Fenwickland, Ayr.
3. Whitfield Bros., Woodend, Arndale.
- V. J. T. Cathcart, Pitcairrie Prize Poultry Yards, Newburgh, Fife.
- H. Lady Pearson of Dunecht, Aberdeenshire.
- C. T. R. Leitch, Smithy Hill, Cameron Bridge, Windygates.

## CLASS 45. ORPINGTON—Black. Cockerel.

1. J. Brennand, Baldersby Park, Thirsk, Yorks.
2. Charles Pattison, Main Street, Lennoxton.
- V. Charles Pattison, Main Street, Lennoxton.

## CLASS 46. ORPINGTON—Black. Pullet.

1. J. Brennand, Baldersby Park, Thirsk, Yorks.

## CLASS 47. ORPINGTON—Buff. Cock.

1. David Reid, Firthview, Portgordon.
2. David Reid, Firthview, Portgordon.
3. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
- V. Allan Black, jun., 141 High Street, Irvine.
- H. Robert Cubby, Moorville, Carlisle.
- C. C. Randolph Dudgeon, Cargen Holm, Dumfries.

## CLASS 48. ORPINGTON—Buff. Hen.

1. John C. Shaw, Lily Cottage, Gertrude Place, Barrhead.
2. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs.
- V. David Reid, Firthview, Portgordon.
- H. William Morgan, Balcurvie, Windygates, Fife.

## CLASS 49. ORPINGTON—Buff. Cockerel.

1. David Reid, Firthview, Portgordon.
2. David Reid, Firthview, Portgordon.
- V. William Reid & Son, 87 Graham Street, Airdrie.
- H. William Thomson, Drumburn, Newabbey Road, Dumfries.



## CLASS 50. ORPINGTON—Buff. Pullet.

1. James Borland, jun., Meadow View, Irvine.
2. David Reid, Firthview, Portgordon.
3. James Borland, jun., Meadow View, Irvine.
- V. David Reid, Firthview, Portgordon.
- H. William Reid & Son, 37 Graham Street, Airdrie.
- C. William Thomson, Drumburn, Newabbey Road, Dumfries.

## CLASS 51. ORPINGTON—Any other Variety. Cock.

1. J. T. Cathcart, Pitcairnie Prize Poultry Yards, Newburgh, Fife (White).

## CLASS 52. ORPINGTON—Any other Variety. Hen.

1. J. T. Cathcart, Pitcairnie Prize Poultry Yards, Newburgh, Fife (White).
2. David Reid, Firthview, Portgordon (White).
- V. Lady Pearson of Dunecht, Aberdeenshire (White).
- H. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs. (White).
- C. Weir Bros., Brick House, Newabbey Road, Dumfries (White).

## CLASS 53. ORPINGTON—Any other Variety. Cockerel.

1. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs. (White).
2. Lady Pearson of Dunecht, Aberdeenshire (White).
- V. George H. Wright, Newabbey, Dumfries (White).
- H. Weir Bros., Brick House, Newabbey Road, Dumfries (White).
- C. William Thomson, Drumburn, Newabbey Road, Dumfries (White).

## CLASS 54. ORPINGTON—Any other Variety. Pullet.

1. J. T. Cathcart, Pitcairnie Prize Poultry Yards, Newburgh, Fife (White).
2. Weir Bros., Brick House, Newabbey Road, Dumfries (White).
3. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs. (White).
- V. David Reid, Firthview, Portgordon.
- H. Lady Pearson of Dunecht, Aberdeenshire (White).
- C. T. E. Leitch, Smithy Hill, Cameron Bridge, Windygates, Fife (White).

## CLASS 55. WYANDOTTE—Gold or Silver. Cock.

1. Charles E. Pickles, Kayfield House, Earby (Gold).
2. Weir Bros., Brick House, Newabbey Road, Dumfries (Silver).
3. William Morgan, Balcurvie, Windygates, Fife (Golden).
- V. R. Anthony, Prize Poultry Farm, Euxton, nr. Chorley, Lancs. (Gold).
- H. John Stewart, Kirkbean, Dumfries (Gold).
- C. Weir Bros., Brick House, Newabbey Road, Dumfries (Gold).

## CLASS 56. WYANDOTTE—Gold or Silver. Hen.

1. Charles E. Pickles, Kayfield House, Earby (Silver).
2. Fred. Argo, 24 Beverley Road, Inverurie (Silver).
3. Charles Edward Pickles, Kayfield House, Earby (Golden).
- V. R. Anthony, Prize Poultry Farm, Euxton, near Chorley, Lancs. (Gold).
- H. Fred. Argo, 24 Beverley Road, Inverurie (Gold).

## CLASS 57. WYANDOTTE—Gold or Silver. Cockerel.

1. Weir Bros., Brick House, Newabbey Road, Dumfries (Gold).
2. Charles Edward Pickles, Kayfield House, Earby (Silver).
- V. J. M. Philipson, Wyandotte Farm, Haydon Bridge, Northumberland (Silver).
- H. William Christie, Black Bull Inn, Inverurie (Silver).

## CLASS 58. WYANDOTTE—Gold or Silver. Pullet.

1. Charles Edward Pickles, Kayfield House, Earby (Gold).
2. Weir Bros., Brick House, Newabbey Road, Dumfries (Gold).
3. D. R. Bone, Fenwickland, Ayr (Gold Laced).
- V. J. M. Philipson, Wyandotte Farm, Haydon Bridge, Northumberland (Silver).
- H. Fred. Argo, 24 Beverley Road, Inverurie (Silver).
- C. Robert M. Elliot, Nittyholm, Canonbie (Silver).

## CLASS 59. WYANDOTTE—Black or White. Cock.

1. R. Anthony, Poultry Farm, Euxton, near Chorley, Lancs. (White).
2. Fred. Argo, 24 Beverley Road, Inverurie (Black).
3. D. R. Bone, Fenwickland, Ayr (White).
- V. Miss Cruickshank, Kempleton, Twynholm, R.S.O. (White).
- H. William Morgan, Balcurvie, Windygates, Fife (Black).
- C. Thomas A. Torrance, Ashbank Poultry Yards, Gorebridge (White).

## CLASS 60. WYANDOTTE—Black or White. Hen.

1. R. Anthony, Prize Poultry Farm, Euxton, near Chorley, Lancs. (White).
2. Lord Leith of Fyvie, Fyvie Castle, Fyvie (White).
3. Andrew Leitch, The Cottage, Cameron Bridge, Windygates, Fife (Black).
- V. Andrew Leitch, The Cottage, Cameron Bridge, Windygates, Fife (Black).
- H. Miss Cruickshank, Kempleton, Twynholm, R.S.O. (White).
- C. Lady Pearson of Dunecht, Aberdeenshire (White).

## CLASS 61. WYANDOTTE—Black or White. Cockerel.

1. R. Anthony, Prize Poultry Farm, Euxton, near Chorley, Lancs. (White).
2. J. Brennand, Baldersby Park, Thirsk, Yorks. (White).
3. William Reid & Son, 87 Graham Street, Airdrie (White).
- V. James Huntly and Son, Hirsell Poultry Farm, Coldstream (White).
- H. Miss Cruickshank, Kempleton, Twynholm, R.S.O. (White).
- C. Thomas A. Torrance, Ashbank Poultry Yards, Gorebridge (White).

## CLASS 62. WYANDOTTE—Black or White. Pullet.

1. R. Anthony, Prize Poultry Farm, Euxton, near Chorley, Lancs. (White).
2. J. Brennand, Baldersby Park, Thirsk, Yorks. (White).
3. James Huntly & Son, Hirsell Poultry Farm, Coldstream (White).
- V. John Wharton, Honeycott Farm, Hawes, Yorks. (White).
- H. William Motion, Parkend, Lockerbie (White).
- C. Thomas A. Torrance, Ashbank Poultry Yards, Gorebridge (White).

## CLASS 63. WYANDOTTE—Any other Variety. Cock.

1. John Wharton, Honeycott Farm, Hawes, Yorkshire (Partridge).
2. James Andrew, Broadlie, Neilston (Partridge).
- V. William Morgan, Balcurvie, Windygates (Partridge).

## CLASS 64. WYANDOTTE—Any other Variety. Hen.

1. John Wharton, Honeycott Farm, Hawes, Yorkshire (Partridge).
2. J. T. Cathcart, Pitcairrie Prize Poultry Yards, Newburgh, Fife (Columbian).
- V. Charles Edward Pickles, Hayfield House, Early (Columbian).

## CLASS 65. WYANDOTTE—Any other Variety. Cockerel.

1. John Wharton, Honeycott Farm, Hawes, Yorkshire (Partridge).
2. John Wharton, Honeycott Farm, Hawes, Yorkshire (Partridge).
- V. J. T. Cathcart, Pitcairrie Prize Poultry Yards, Newburgh, Fife (Columbian).

## CLASS 66. WYANDOTTE—Any other Variety. Pullet.

1. John Wharton, Honeycott Farm, Hawes, Yorkshire (Partridge).
2. John Wharton, Honeycott Farm, Hawes, Yorkshire (Partridge).
- V. J. T. Cathcart, Pitcairrie Prize Poultry Yards, Newburgh, Fife (Columbian).

## CLASS 67. INDIAN GAME. Cock.

1. John W. Matheson, Freeland, Gateside, Fife.
2. George Hunter, Blythe, Melrose.
- V. D. R. Bone, Fenwickland, Ayr.

## CLASS 68. INDIAN GAME. Hen.

1. George Hunter, Blythe, Melrose.

## CLASS 69. GAME—Old English. Cock.

1. J. Brennand, Baldersby Park, Thirsk, Yorks
2. I. T. Dodd, The Wath Farm, Silloth, Cumberland.
3. Ralph D. Moore, Denehollow, Bearsden.
- V. A. K. Crichton, Estates Office, Brookfield, Johnstone.
- H. J. and A. Naismith, Blackhall Farm, by Lesmahagow.
- C. Joseph Thorburn, Fernlea, Annan.

## CLASS 70. GAME—Old English. Hen.

1. John S. Robson, Wall Foot, Crosby on Eden, Carlisle.
2. Joseph Thorburn, Fernlea, Annan.
- V. Joseph Thorburn, Fernlea, Annan.
- H. Ralph D. Moore, Denehollow, Bearsden.

## CLASS 71. GAME—Modern. Cock.

1. J. Brennand, Baldersby Park, Thirsk, Yorks.

## CLASS 72. GAME—Modern. Hen.

1. J. Brennand, Baldersby Park, Thirsk, Yorks.

## CLASS 73. GAME—Indian and Old English. Cockerel. No Entry.

## CLASS 74. GAME—Indian and Old English. Pullet. No Entry.

## CLASS 75. BANTAM—Game, any Variety, including Old English and Indian Game. Cock.

1. J. Brennand, Baldersby Park, Thirsk, Yorks. (Modern).
2. James Hill, 18 Newmonthill, Forfar (Duckwing).
3. Ralph D. Moore, Denehollow, Bearsden (Old English).
- V. J. T. Cathcart, Pitcairrie Prize Poultry Yards, Newburgh, Fife (Old English).
- H. William Coutts, jun., Rosemount, Forfar (Pile).
- C. George S. M'Glasson, Newbie Villa, Annan (Black Red).

## CLASS 76. BANTAM—Game, any Variety, including Old English and Indian Game. Hen.

1. George S. M'Glasson, Newbie Villa, Annan (Spangle).
2. Wm. Coutts, jun., Rosemount, Forfar (Duckwing).
- V. J. Brennand, Baldersby Park, Thirsk, Yorks. (Modern).
- H. Ralph D. Moore, Denehollow, Bearsden (Old English).

## CLASS 77. BANTAM—Any other Variety Bantam. Cock.

1. James M'Crae, 13 Thomson Street, Kilmarnock (Scotch Grey).
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream (Seabright).
3. Josiah Wright, Locarbriggs, Dumfries (Black Rosecomb).
- V. A. Masterton, Station Road, Windygates (Seabright).
- H. Master H. Elliot, Harwood, Boncaster Bridge, Hawick (Japanese).
- C. Sir William Jardine, Bart. of Applegarth, Luce, Annan (Pekin).

## CLASS 78. BANTAM—Any other Variety Bantam. Hen.

1. James M'Crae, 13 Thomson Street, Kilmarnock (Scotch Grey).
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream (Seabright).
3. Sir William Jardine, Bart. of Applegarth, Luce, Annan (Pekin).
- V. Master H. Elliot, Harwood, Boncaster Bridge, Hawick (Japanese).
- H. Sir William Jardine, Bart. of Applegarth, Luce, Annan (Pekin).
- C. Sir William Jardine, Bart. of Applegarth, Luce, Annan (Pekin).

## CLASS 79. Any other recognised Breed of Poultry. Cock.

1. William H. Steven, Woodend, Helensburgh (Yokohama).
2. Alex. Ollar, Kilkerran Cottage, Campbeltown (Spanish).
- V. Andrew MacLachlan, Westview, Beith (Andalusian).
- H. Weir Bros., Brick House, Newabbey Road, Dumfries (Rhode Island Red).

## CLASS 80. Any other recognised Breed of Poultry. Hen.

1. Alex. Ollar, Kilkerran Cottage, Campbeltown (Spanish).
2. John Smith, Netherholm House, Kirkmahoe, Dumfries (Faverolle).
- V. Andrew MacLachlan, Westview, Beith (Andalusian).
- H. William H. Steven, Woodend, Helensburgh (Yokohama).

## CLASS 81. Any other recognised Breed of Poultry. Cockerel.

1. J. Brennand, Baldersby Park, Thirsk, Yorks. (Modern Game).
2. William Coutts, jun., Rosemount, Forfar (Pile).

## CLASS 82. Any other recognised Breed of Poultry. Pullet.

1. J. Brennand, Baldersby Park, Thirsk, Yorks. (Modern Game Bantam).
2. Weir Bros., Brick House, Newabbey Road, Dumfries (Rhode Island Red).
- V. William Coutts, jun., Rosemount, Forfar (Pile).

## CLASS 83. TABLE FOWLS—Any Breed or Cross, to be judged solely as Table Fowls, and without regard to fancy points. Pair of Cockerels.

1. John Mechie, Auchtermuchty (Light Sussex).
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream (Game and Orpington).
3. John W. Matheson, Freeland, Gateside, Fife (Light Sussex).
- V. J. Brennand, Baldersby Park, Thirsk, Yorks (Indian Game and Dorking).
- H. Thomas A. Torrance, Ashbanks Poultry Yards, Gorebridge (Sussex).
- C. Weir Bros., Brick House, Newabbey Road, Dumfries (Rhode Island Red and White Orpington).

## CLASS 84. TABLE FOWLS—Any Breed or Cross, to be judged solely as Table Fowls, and without regard to fancy points. Pair of Pullets.

1. Mrs Hilda H. Farquhar, St Margaret's, Bridge of Weir (White Orpington).
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream (Game and Orpington).
- V. J. Brennand, Baldersby Park, Thirsk, Yorks. (Indian Game and Dorkings).
- H. Thomas A. Torrance, Ashbank Poultry Yards, Gorebridge (Sussex).
- C. Weir Bros., Brick House, Newabbey Road, Dumfries (Rhode Island Red and White Orpington).

## CLASS 85. DUCKS—Aylesbury. Drake.

1. James Huntly & Son, Hirsell Poultry Farm, Coldstream.
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream.

## CLASS 86. DUCKS—Aylesbury. Duck.

1. James Huntly & Son, Hirsell Poultry Farm, Coldstream.
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream.

## CLASS 87. DUCKS—Aylesbury. Drake (Young).

1. James Huntly & Son, Hirsell Poultry Farm, Coldstream.
2. Mrs Thorburn, Glenormiston, Innerleithen.
- V. James Huntly & Son, Hirsell Poultry Farm, Coldstream.

## CLASS 88. DUCKS—Aylesbury. Duck (Young).

1. James Huntly & Son, Hirsell Poultry Farm, Coldstream.
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream.
- V. Mrs Thorburn, Glenormiston, Innerleithen.

## CLASS 89. DUCKS—Rouen. Drake.

1. J. Brennand, Baldersby Park, Thirsk, Yorks.
2. James Huntly & Son, Hirsell Poultry Farm, Coldstream.
- V. James Huntly & Son, Hirsell Poultry Farm, Coldstream.

## CLASS 90. DUCKS—Rouen. Duck.

1. James Huntly & Son, Hirsal Poultry Farm, Coldstream.
2. James Huntly & Son, Hirsal Poultry Farm, Coldstream.
- V. Frederick G. S. Rawson, Thorpe, Halifax.
- C. J. Brennand, Baldersby Park, Thirsk, Yorks.

## CLASS 91. DUCKS—Any other Variety. Drake.

1. James Huntly & Son, Hirsal Poultry Farm, Coldstream (Pekin).
2. W. Woodmass, Howard House, Gilsland, near Carlisle (Indian Runner).
3. James Huntly & Son, Hirsal Poultry Farm, Coldstream (Pekin).
- V. William H. Steven, Woodend, Helensburgh (Indian Runner).
- H. C. Randolph Dudgeon, Cargen Holm, Dumfries (Buff Orpington).

## CLASS 92. DUCKS—Any other Variety. Duck.

1. James Huntly & Son, Hirsal Poultry Farm, Coldstream (Pekin).
2. James Huntly & Son, Hirsal Poultry Farm, Coldstream (Pekin).
3. C. Randolph Dudgeon, Cargen Holm, Dumfries (Buff Orpington).
- V. C. Randolph Dudgeon, Cargen Holm, Dumfries (Buff Orpington).

## CLASS 93. DUCKS—Any Variety (Aylesbury excepted). Drake (Young).

1. J. Brennand, Baldersby Park, Thirsk, Yorks. (Rouen).
2. James Huntly & Son, Hirsal Poultry Farm, Coldstream (Rouen).
- V. James Huntly & Son, Hirsal Poultry Farm, Coldstream (Rouen).
- H. A. E. Brown, Bickley Hotel, Chislehurst, Kent (Buff Orpington).

## CLASS 94. DUCKS—Any Variety (Aylesbury excepted). Duck (Young).

1. James Huntly & Son, Hirsal Poultry Farm, Coldstream (Rouen).
2. J. Brennand, Baldersby Park, Thirsk, Yorks. (Rouen).
3. James Huntly & Son, Hirsal Poultry Farm, Coldstream (Rouen).
- V. J. Donald, Arlosh House, Wigton, Cumberland (Indian Runner).

## CLASS 95. GEESE. Gander.

1. W. Woods, Worksop, Notts (Toulouse).
2. Arthur H. Fox-Brockbank, The Croft, Kirksanton, Silcroft, Cumberland (Embsden).

## CLASS 96. GEESE. Goose.

1. W. Woods, Worksop, Notts (Toulouse).

## CLASS 97. TURKEYS. Cock.

1. Lord Leith of Fyvie, Fyvie Castle, Fyvie (American Bronze).
2. Robt. Clark, Taybank, Errol, Perthshire (American Bronze).

## CLASS 98. TURKEYS. Hen.

1. Robert Clark, Taybank, Errol, Perthshire (American Bronze).
2. Miss Mary Blackstock, Flatts of Cargen, Dumfries (American Bronze).

## DAIRY PRODUCE

## CLASS 1. POWDERED BUTTER, not less than 7 lb.—Premiums, £4, £2, and £1.

1. Robert Gilmour, Stonebyres, Eaglesham.
2. Alex. Cook, Burnhouse, Denny.
3. William Rennie, Parkhead, Slamannan.
- V. Robert Hamilton, Spittal, Biggar.
- H. Miss L. Strang, Transy Farm, Dunfermline.

CLASS 2. FRESH BUTTER, Three 1 lb. Rolls.—Premiums, £4, £2, and £1.

1. Mrs Helen Monteith, Clachanry, Balfron.
2. Miss Shanks, Broomhill Farm, Denny.
3. Robert Hamilton, Spittal, Biggar.
- V. Alex. Cook, Burnhouse, Denny.
- H. James Cameron, Lincluden Mains, Dumfries.
- C. William Rennie, Parkhead, Slamannan.

CLASS 3. CHEDDAR CHEESE, 56 lb. and upwards.—  
Premiums, £12, £7, £4, £3, £2, and £1.

1. James Milroy, Galdenoch, Stoneykirk.
2. W. H. Ralston, Milmain, Dunragit.
3. W. P. Gilmour, Balmangan, Kirkcudbright.
4. Robert Stevenson, Boghead, Galston.
5. Homer Young, Redhills, Dumfries.
6. James M'Cartney, Kilmark, Tynron, by Thornhill.
- V. David Thomson, Milton Dairy, Kirkcudbright.
- H. John Cruikshank, Castle Creavie, Kirkcudbright.
- C. Alex. Wilson, Linns Farm, Dumfries.

CLASS 4. SWEET-MILK CHEESE, flat shape, white in colour, made according to the Dunlop or other method.—Premiums, £5, £4, £3, and £2.

1. James M'Cartney, Kilmark, Tynron, by Thornhill.
2. Alex. Wilson, Linns Farm, Dumfries.
3. Thomas Thomson, Leaths, Castle-Douglas.
4. George Gibson, North Auchenbrain, Galston.
- V. David Purdie, Inglestonford, Newabbey, Dumfries.
- H. David Thomson, Milton Dairy, Kirkcudbright.
- C. Hugh Gilchrist, Torrs Dairy, Kirkcudbright.

CLASS 5. CHEESE, 14 lb. and under.—Premiums, £4, £3, £2, and £1.

1. Robert Stevenson, Boghead, Galston.
2. Arnold W. Saunders, Dromore Farm, Kirkcudbright.
3. David Gibson, Boreland, Castle-Douglas.
4. David G. Plunkett, Belzies, Lochmaben.
- V. James M'Cartney, Kilmark, Tynron, by Thornhill.
- H. John Cruikshank, Castle Creavie, Kirkcudbright.
- C. James Kerr, Banks, Kirkcudbright.

## JUDGES

*Shorthorn*.—C. M. Cameron, Balnakeyle, Munlochy; C. H. Jolliffe, Newbus Grange, Darlington.

*Aberdeen-Angus*.—Alex. M'Laren, 10 Allan Street, Dundee; John Murray, Balruddery Farm, Dundee.

*Galloway*.—John Fraser, Barmark, Corsock, Dalbeattie; John Rutherford, Allensteads, Low Row, Carlisle.

*Highland*.—J. R. Campbell, Shinness, Lairg, Sutherland.

*Ayrshire*.—Matthew Hunter, Adamhill, Craigie; John M'Alister, Ardyne, Toward, Argyll.

*Clydesdale Stallions and Geldings*.—David Allison, Duddingston, South Queensferry; Peter Dewar, Arnprior, Port of Monteith; Wm. Melklem, Begg Farm, Kirkcaldy.

*Clydesdale Mares and Fillies*.—Leslie Durno, Mains of Glack, Pitcaple; David A. Hood, Balgreddan, Kirkcudbright; William Kerr, Old Graitney, Greta.

*Hunters*.—W. A. Harford, Petty France, Badminton, S.O., Glos.

*Hackneys, Harness Horses, and Ponies*.—Chris. W. Wilson, Rigmaden Park, Kirkby-Lonsdale, Westmorland.

*Highland Ponies.*—John C. Robertson, Fodderty, Dingwall.

*Shetland Ponies.*—Colonel William-son of Lawers, Comrie, Perthshire; D. Stewart, Blantyre Park, High Blantyre.

*Blackface.*—John Craig, Innergeldie, Comrie; James Greenshields, West Town, Coalburn, Lanarkshire; Thomas T. Brydon, Burncastle, Lauder.

*Cheviot.*—Andrew Douglas, Riccalton, Jedburgh; Robert Thornton, West Kielder, Kielder Station, Northumberland.

*Border Leicester.*—Thomas Templeton, Sandyknowe, Kelso; Andrew Wood, Brockbushes, Stocksfield-on-Tyne.

*Half-Bred and Fat Sheep.*—Richard

Davidson, Swinnie, Jedburgh; James Newton, Queenscairn, Kelso.

*Shropshire.*—Alfred Mansell, College Hill, Shrewsbury.

*Oxford Down.*—E. Gibson Heslop, Langton, Gainford, Darlington.

*Suffolk.*—S. R. Sherwood, Playford, Ipswich.

*Swine.*—George Sinclair, Home Farm, Dalmeny Park.

*Poultry.*—Alex. M. Prain, Holmlea, Errol (Classes 23 to 66 inclusive, and Classes 79 to 82 inclusive); Thomas Fullarton, Loans, Troon (Classes 1 to 22 inclusive, Classes 67 to 78 inclusive, and Classes 83 to 98 inclusive).

*Dairy Produce.*—Andrew Mitchell, Alloway Park, Ayr.

### III.—VETERINARY DEPARTMENT.

#### CLASS EXAMINATIONS—1910.

Silver Medals were awarded to the following :—

#### ROYAL (DICK) VETERINARY COLLEGE.

Chemistry .	Ronald S. Little, Carlisle.
Biology .	John W. Hayes, Edinburgh.
Junior Anatomy	John W. Hayes, Edinburgh.
Senior Anatomy	Samuel Littler, Newark, Notts.
Physiology .	Samuel Littler, Newark, Notts.
Stable Management	Henry A. Thorne, Barnstaple.
Pathology and Bacteriology	William Halstead, Carlisle.
Materia Medica .	William D. Connochie, Galashiels.
Hygiene and Dietetics	William D. Connochie, Galashiels.
Veterinary Surgery	David R. Crabb, New Aberdour.
Veterinary Medicine	V. P. Littler, Melton-Mowbray.

#### GLASGOW VETERINARY COLLEGE.

Chemistry .	James M. Dawson, Glasgow.
Biology .	James M. Dawson, Glasgow.
Junior Anatomy	James M. Dawson, Glasgow.
Senior Anatomy	David Keir, Paisley.
Physiology .	Patrick J. Turner, Glasgow.
Stable Management	Daniel Pollock, Hamilton.
Pathology and Bacteriology	Peter Meikle, Strathaven.
Materia Medica .	Peter Meikle, Strathaven.
Hygiene and Dietetics	John Scott, Hamilton.
Veterinary Surgery	David Cooper, Auchencairn.
Veterinary Medicine	David Cooper, Auchencairn.

22 Large Silver Medals, £14, 0s. 6d.

## IV.—DISTRICT COMPETITIONS, 1910.

17	Districts—	Grants of £12 each (Section I.) . . . . .	£204	0	0
12	"	Grants of £15 each (Section II.) . . . . .	180	0	0
10	"	Special Grants, £129; Medals, £4, 11s. 6d. . . . .	133	11	6
33	"	Medals for Shows (66 Large, 9 Medium) . . . . .	45	18	0
11	"	Medals for Cottages and Gardens (18 Minor, 1 Medium) . . . . .	4	15	6
190	"	Medals for Ploughing, 1909-10 . . . . .	45	18	4
<hr/>			<hr/>		
273			£614	3	4
			<hr/>		

## ABSTRACT OF PREMIUMS.

Dumfries Show . . . . .	£2704	2	9
District Competitions . . . . .	614	3	4
Veterinary Colleges . . . . .	14	0	6
<hr/>			
	£3332	6	7
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## STIRLING SHOW, 1909.

## ALTERATIONS IN PRIZE LIST.

On account of animals failing to comply with the Regulations as to calving, the following changes have taken place in the list of animals for which prizes were paid :—

## GALLOWAY.

CLASS 17. HEIFER, calved on or after 1st December 1906.—  
Premiums, £10, £5, £3, and £2.

1. No. 178 Arthur H. Fox-Brockbank, The Croft, Silecroft, Kirksanton, Cumberland, "Clare" (21,352).
- \* No. 176 John Cunningham, Tarbreoch, Dalbeattie, "Maggie Lauder 7th of Tarbreoch" (19,512).
2. No. 179 Francis N. M. Gourlay, Broomfield, Moniaive, Dumfriesshire, "Favourite of Craigneston" (19,625).
3. No. 183 James Wilson, Tundergarth Mains, Lockerbie, "Nancy 9th of Tundergarth Mains" (19,502).
4. No. 175 Sir Robert W. Buchanan-Jardine of Castlemilk, Bart., Lockerbie, "Daffodil III. of Castlemilk" (19,456).
- H. No. 182 Walter Montgomerie Neilson of Queenshill, Ringford, R.S.O., "Bell 5th of Lairdlaugh" (19,580).
- C. No. 177 John Cunningham, Tarbreoch, Dalbeattie, "Tarbreoch Doris 3rd" (19,511).

## HIGHLAND.

CLASS 23. HEIFER, calved in 1906.—Premiums, £10, £5, £3, and £2.

- \* No. 246 Gerard Craig Sellar of Ardtornish, Morvern, Argyllshire, "Mairi Ruadh of Ardtornish."
1. No. 251 Donald A. Stewart of Lochdhu, Nairn, "Lochag."
2. No. 248 The Earl of Southesk, Kinnaird Castle, Brechin, "Princess Caroline" (7392).
3. No. 243 Captain J. Campbell of Kilberry, Kilberry, Argyllshire, "Buravalla Laghach" (7197).
- \* No. 249 The Earl of Southesk, Kinnaird Castle, Brechin, "Dione" (7388).
4. No. 238 The Duke of Atholl, K.T., Blair Castle, Blair-Atholl, "Bean Bhan 1st of Atholl."
- C. No. 247 William Sopper of Dunmaglass, Daviot, "Diana of Dunmaglass" (7379).

*The animals failing to qualify are marked thus (\*).*

STATE OF THE FUNDS  
OF  
THE HIGHLAND AND AGRICULTURAL SOCIETY  
OF SCOTLAND

As at 30th NOVEMBER 1910.

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I. INVESTED IN CONSOLS, HERITABLE BONDS, DEBENTURE AND PREFERENCE RAILWAY STOCKS, BANK STOCKS, &c.	£105,037 1 1
II. ESTIMATED VALUE of Buildings, No. 3 George IV. Bridge . . . . .	£3,100 0 0
III. ESTIMATED VALUE of Furniture, Paintings, Books, &c. . . . .	1,000 0 0
	4,100 0 0
IV. ARREARS OF SUBSCRIPTIONS considered recoverable . . .	141 16 0
V. BALANCES at 30th November 1910 DUE BY ROYAL BANK OF SCOTLAND ON ACCOUNTS CURRENT . . . . .	3,992 6 0
AMOUNT OF GENERAL FUNDS . . . . .	£113,271 3 1
VI. TWEEDDALE MEDAL FUND— Heritable Bond, at 3½ per cent . . . . .	£500 0 0

C. H. SCOTT PLUMMER, *Chairman of Directors.*  
ALEXANDER CROSS, *Director.*  
WM. HOME COOK, C.A., *Auditor.*

EDINBURGH, 11th January 1911.

# **ABSTRACT of the ACCOUNTS of the HIGHLAND and CHARGE.**

1. BALANCES due by Royal Bank of Scotland on Account Current at 30th November 1909 . . . . .	£2,208	0	11
2. ARREARS of Subscriptions outstanding at 30th Nov. 1909 . . . . .	£161	4	0
Whereof due by Members who have compounded for life, and whose arrears are thereby extinguished . . . . .	£3	0	0
Sums ordered to be written off . . . . .	83	12	0
	86	12	0
			74 12 0
3. INTERESTS AND DIVIDENDS—			
(1) Interests—			
On Heritable Bonds, less Income-tax . . . . .	£725	2	0
On Debenture and Preference Stocks, do. . . . .	1,540	13	2
On Colonial Government Stocks, do. . . . .	107	2	4
On Annuity Stocks, do. . . . .	69	13	6
On Deposit-Receipts with Edinburgh Corporation, do. . . . .	42	2	2
	£2,484	13	2
(2) Dividends—			
On Consols, less Income-tax. . . . .	£94	8	4
On Bank Stocks . . . . .	1,207	13	3
	1,301	16	7
			3,786 9 9
4. SUBSCRIPTIONS—			
Annual Subscriptions . . . . .	£1,324	7	6
Life Subscriptions . . . . .	490	10	0
			1,814 17 6
5. TRANSACTIONS—Sales and Advertisements . . . . .			51 1 7
6. RECEIPTS on Account of previous Shows . . . . .			10 8 3
7. RECEIPTS from Dumfries Show . . . . .			7,572 3 5
8. INVESTMENTS REALISED . . . . .			2,300 0 0
9. INCOME-TAX repaid for year to 5th April 1910 . . . . .			223 11 4
<div style="position: absolute; bottom: 0; right: 0; width: 100%; height: 100%; border-left: 1px solid black; border-bottom: 1px solid black;"></div>			
SUM OF CHARGE . . . . .	£18,036	4	

## AGRICULTURAL SOCIETY of SCOTLAND for the Year 1909-1910.

## DISCHARGE.

<b>1. ESTABLISHMENT EXPENSES—</b>			
Salaries and Wages—Secretary, £900; Clerk, £300; Second Clerk, £225;			
Messenger, £72			£1,497 0 0
Fee-duty, £28; Taxes, £50, 8s. 3d.			78
Coals, Gas, and Electric Light			40 13 5
Repairs and Furnishings			44 11 10
Insurances			18 2 8
			£1,678 15 9
<b>2. FEE to Auditor of Accounts for 1908-1909</b>			75 0 0
<b>3. EDUCATION—</b>			
(1) Forestry—			
Vote to Lectureship in Edinburgh University	£50 0 0		
Expenses of Examination	2 19 1		
		£52 19 1	
(2) Agriculture—			
Expenses of National Diploma Examination	118 5 7		
			171 4 8
<b>4. CHEMICAL DEPARTMENT—</b>			
(1) Fee to Chemist	£50 0 0		
(2) Chemist's Fees for Analyses to Members, and Expenses	104 18 0		
		£154 18 0	
(3) Expenses of Manuring and Sheep-Grazing Experiments, £146, 6s. 11d.—Less Grant from Board of Agriculture, £50, and proceeds of Sheep and Wool sold, £53, 18s. 1d.	42 18 10		
(4) Pasture Experiments—Travelling Expenses, &c., of Experts, £22, 11s. 8d.; Outlays, £42, 12s. 8d.	65 4 4		
			262 11 2
<b>5. VETERINARY DEPARTMENT—</b>			
Medals to Students	£14 0 6		
Outlays of Experiments in connection with Maggots on Sheep	1 8 10		
			15 9 4
<b>6. BOTANICAL DEPARTMENT—</b>			
Fee to Botanist for year	£25 0 0		
Testing Samples of Seeds for Members	31 19 0		
			56 19 0
<b>7. DAIRY DEPARTMENT—</b>			
(1) Expenses of Examination at Kilmarnock, £39, 8s. 9d., less Entry Fees, £24	£65 8 9		
(2) Milk Record Scheme	200 0 0		
(3) Experiments with Cows in different temperatures, £150, 18s. 7d.; less Grant from Board of Agriculture, £100	50 18 7		
			816 7 4
<b>8. SOCIETY'S TRANSACTIONS</b>			788 18 5
<b>9. ORDINARY PRINTING, £63, 18s. 8d.; Advertising, £18, 2s.; Stationery, Books, &amp;c., £51, 4s. 11d.; Postages, &amp;c., £65; Bank Charges, &amp;c., £7, 4s. 8d.</b>			205 4 5
<b>10. FEE to Consulting Engineer</b>			25 0 0
<b>11. GRANTS to Public Societies—Scottish Meteorological Society, £20; Society for Prevention of Cruelty to Animals, £5; sum voted to Highland Association, £10</b>			35 0 0
<b>12. MISCELLANEOUS PAYMENTS</b>			189 10 9
<b>13. INVESTMENTS made</b>			2,800 0 0
<b>14. PAYMENTS in connection with previous Show</b>			158 0 0
<b>15. PAYMENTS in connection with Dumfries Show—Premiums, £2564, 2s. 9d.; General Expenses, £4305, 16s. 6d.</b>			6,869 19 3
<b>16. PREMIUMS to Local Shows and District Competitions</b>			691 4 2
<b>17. ARREARS of Subscriptions struck off as irrecoverable</b>			67 18 6
<b>18. ARREARS outstanding at 30th November 1910</b>			141 16 0
<b>19. BALANCES at 30th November 1910 with Royal Bank of Scotland on Account Current—</b>			
Edinburgh Account	£3852 6 0		
London Account	140 0 0		
			3,992 6 0

SUM OF DISCHARGE £18,036 4 9

C. H. SCOTT PLUMMER, *Chairman of Directors.*ALEXANDER CROSS, *Director.*WM. HOME COOK, C.A., *Auditor.*

## ABSTRACT of the ACCOUNTS

## CHARGE.

## 1. LOCAL SUBSCRIPTIONS—

Kirkcudbrightshire Voluntary Assessment . . . . .	£352 9 7
Dumfriesshire do. . . . .	679 18 0
Wigtownshire do. . . . .	150 0 0
Town of Dumfries, Subscription . . . . .	50 0 0
	<hr/>
	£1,282 7 7

## 2. AMOUNT COLLECTED DURING SHOW—

Drawn at Gates . . . . .	£2,673 8 0
Drawn at Grand Stand . . . . .	480 17 0
Catalogues and Awards sold . . . . .	251 9 2
Cloak-Rooms, &c. . . . .	6 0 4
	<hr/>
	3,411 14 6
3. FORAGE SOLD . . . . .	5 5 8
4. RENT OF STALLS . . . . .	2,868 0 0
5. RENT OF REFRESHMENT BOOTHS . . . . .	250 0 0
6. ADVERTISEMENTS IN CATALOGUE AND PREMIUM LIST . . . . .	59 15 3
7. SUBSCRIPTIONS IN AID OF PREMIUM LIST . . . . .	216 10 0
8. INCOME FROM TWEEDDALE MEDAL FUND . . . . .	16 9 6
9. INTEREST FROM DEPOSIT RECEIPTS WITH EDINBURGH CORPORATION . . . . .	12 0 11

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£7,572 3 5

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Note.—From the above balance of . . . . . £702 4 2  
 There falls to be deducted—

Premiums undrawn at 30th November 1910, amounting to . . . . . 140 0 0

Making the probable Surplus . . . . . £562 4 2

EDINBURGH, 11th January 1911.

## of the DUMFRIES SHOW, 1910.

## DISCHARGE.

## 1. SHOWYARD EXPENDITURE—

Fitting up Showyard . . . . .	£2,438 14 3
Rent of Rotchell Park . . . . .	100 0 0
Rosettes, £31, 2s. 11d.; Storing and Repairing Turnstiles, £5, 13s. . . . .	36 15 11
Railway Cartages and Carriages . . . . .	23 9 2
Feeding and Penning of Poultry, £5; Miscellaneous, £13, 12s. 3d.	18 12 3

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£2,617 11 7

2. FORAGE . . . . . 255 14 11

3. POLICE . . . . . 37 6 1

4. TRAVELLING EXPENSES . . . . . 150 10 9

## 5. HOTEL AND LUNCHEONS—

Hotel Bill for 23 Directors, 7 Stewards, 33 Judges £145 2 7

Luncheons and Breakfasts in Showyard for

Directors, Judges, and Committee . . . . . 182 18 4

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328 0 11

6. MUSIC . . . . . 93 0 0

7. PRINTING . . . . . 265 15 11

8. ADVERTISING and Bill-posting . . . . . 162 15 3

9. HIGHLAND INDUSTRIES . . . . . 6 10 0

10. VETERINARY INSPECTION . . . . . 10 10 0

11. CONCERT for Attendants . . . . . 1 19 0

12. TREASURER . . . . . 25 0 0

13. ENGINEER . . . . . 30 0 0

14. FORESTRY EXHIBITION . . . . . 18 0 0

15. POSTAGES . . . . . 58 5 0

16. ASSISTANTS and Attendants . . . . . 221 14 7

17. MISCELLANEOUS . . . . . 23 2 6

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£4,305 16 6

PREMIUMS drawn at 30th November 1910 . . . . . 2,564 2 9

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£6,869 19 3

BALANCE OF RECEIPTS . . . . . 702 4 2

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£7,572 3 5

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C. H. SCOTT PLUMMER, *Chairman of Directors.*

ALEXANDER CROSS, *Director.*

WM. HOME COOK, C.A., *Auditor.*

## ABSTRACT of the ACCOUNTS of the

## CHARGE.

## I. FUNDS at 30th November 1909—

Amount on Heritable Bond, at 3½ per cent . . . . .	£3,500 0 0
£3,193, 6s. 8d. North British Railway Company 3 per cent Debenture Stock, purchased at . . . . .	2,650 0 0
£550 Lancashire and Yorkshire Railway Company 3 per cent Debenture Stock, purchased at . . . . .	611 10 6
£190 London and North-Western Railway Company 4 per cent Guaranteed Stock, purchased at . . . . .	259 1 11
	<hr/>
	£7,020 12 5
BALANCE in Royal Bank on Account Current . . . . .	490 18 4
	<hr/>
	£7,511 10 9

## II. INTEREST ON INVESTMENTS—

On £3,500 on Heritable Bond at 3½ per cent, £122, 10s., less tax £7, 2s. 10d. . . . .	£115 7 2
On £3,193, 6s. 8d. North British Railway Company 3 per cent Debenture Stock, £95, 16s., less tax £5, 11s. 10d. . . . .	90 4 2
On £550 Lancashire and Yorkshire Railway Com- pany 3 per cent Debenture Stock, £16, 10s., less tax 19s. 4d. . . . .	15 10 8
On £190 London and North-Western Rail- way Company 4 per cent Guaranteed Stock, £7, 12s., less tax 8s. 10d. . . . .	7 3 2
	<hr/>
	228 5 2
SUM OF CHARGE . . . . .	<hr/>
	£7,739 15 11

### ARGYLL NAVAL FUND for Year 1909-1910.

**DISCHARGE.**

**I. ALLOWANCES to the five following Recipients—**

John S. Binny Scott (seventh year)	.	.	.	.	£40	0	0
Francis Gordon Hunter (fifth year)	.	.	.	.	40	0	0
Patrick Bruce Lawder (fourth year)	.	.	.	.	40	0	0
Thomas F. Fenton-Livingstone (third year)	.	.	.	.	40	0	0
M. C. Despard (first year)	.	.	.	.	40	0	0
					£200	0	0

## II. FUNDS at 30th November 1910—

Amount on Heritable Bond, at 3½ per cent	£3,500	0	0
£3,193, 6s. 8d. North British Railway Company 3 per cent Debenture Stock, purchased at	2,650	0	0
£550 Lancashire and Yorkshire Railway Com- pany 3 per cent Debenture Stock, purchased at	611	10	6
£190 London and North-Western Railway Com- pany 4 per cent Guaranteed Stock, purchased at	259	1	11
	<hr/>		
	£7,020	12	5
Balance in Royal Bank on Account Current	519	3	6
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			7,539 15 11

SUM OF DISCHARGE . . £7,789 15 11

C. H. SCOTT PLUMMER, *Chairman of Directors.*

ALEXANDER CROSS, *Director.*

WM. HOME COOK, C.A., Auditor.



## VIEW OF RECEIPTS AND PAYMENTS

For the Year 1909-1910.

*RECEIPTS.*

1. ANNUAL SUBSCRIPTIONS AND ARREARS received . . . . .	£1,189	5	0
2. LIFE SUBSCRIPTIONS . . . . .	490	10	0
	<hr/>		
	£1,679	15	0
3. INTERESTS AND DIVIDENDS—			
Interests . . . . .	£2,484	13	2
Dividends . . . . .	1,301	16	7
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	3,786	9	9
4. TRANSACTIONS . . . . .		51	1
5. RECEIPTS on account of previous Shows . . . . .		10	8
6. RECEIPTS from Dumfries Show . . . . .		7,572	3
7. INVESTMENTS realised . . . . .	£2,300	0	0
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8. MISCELLANEOUS . . . . .		223	11
		4	
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SUM OF RECEIPTS . . . . .	£13,323	9	4

*PAYMENTS.*

1. ESTABLISHMENT EXPENSES—			
Salaries and Wages . . . . .	£1,497	0	0
Fou - duty, Taxes, Coal, Gas, Insurance, Repairs, and Furnishings . . . . .	181	15	9
	<hr/>		
	£1,678	15	9
2. FEE TO AUDITOR of Accounts for year 1908-1909 . . . . .	75	0	0
3. EDUCATION . . . . .	171	4	8
4. CHEMICAL DEPARTMENT . . . . .	262	11	2
5. VETERINARY DEPARTMENT . . . . .	15	9	4
6. BOTANICAL AND ENTOMOLOGICAL DEPARTMENT . . . . .	56	19	0
7. DAIRY DEPARTMENT . . . . .	316	7	4
8. SOCIETY'S TRANSACTIONS . . . . .	783	18	5
9. ORDINARY Printing, Advertising, and Postages . . . . .	205	4	5
10. SALARY of Consulting Engineer . . . . .	25	0	0
11. GRANTS to Public Societies . . . . .	35	0	0
12. MISCELLANEOUS PAYMENTS . . . . .	189	10	9
13. INVESTMENTS made . . . . .	£2,300	0	0
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14. PAYMENTS in connection with previous Shows . . . . .	158	0	0
15. PAYMENTS in connection with Dumfries Show—			
Premiums . . . . .	£2,564	2	9
General Expenses . . . . .	4,805	16	6
	<hr/>		
	6,869	19	3
16. PREMIUMS for Local Shows and District Competitions . . . . .	691	4	2
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SUM OF PAYMENTS . . . . .	11,534	4	3
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BALANCE OF RECEIPTS . . . . .	£1,789	5	1

C. H. SCOTT PLUMMER, *Chairman of Directors.*ALEXANDER CROSS, *Director.*WM. HOME COOK, C.A., *Auditor.*

EDINBURGH, 11th January 1911.

## PROCEEDINGS AT BOARD MEETINGS.

### MEETING OF DIRECTORS, 2ND MARCH 1910.

C. H. SCOTT PLUMMER in the Chair.

*The late Mr John Cran.*

The CHAIRMAN referred to the death of Mr John Cran, Kirkton, Inverness, and moved that the Directors record in the Minutes an expression of the deep regret with which they received the intimation of his death, and of their sense of the services rendered by him to the Society.

*Dumfries Show, 1910.*

*Special Prize.*—An offer of a Special Prize of £5, 5s. was intimated from the President of the Shetland Pony Stud-Book Society, for Shetland Pony of either sex best suited for saddle, to be drawn from the Shetland Pony classes and judged by the judge of Hunters—to be shown in hand.

Mr CROSS moved that the prize be not accepted on the conditions named. Mr CAMERON seconded. Dr SHIRRA GIBB moved that the prize be accepted. Mr GORDON DUFF seconded. On a show of hands being taken, Dr Gibb's motion was carried by 7 to 6.

*Hunters.*—Dr Gillespie reported that Mr Charles Brook, the Master, and other members of the Dumfriesshire Hunt, had contributed £66 in supplement of the prizes list for the Hunter Classes at the Dumfries Show.

The SECRETARY was instructed to convey to the Master and other members of the Dumfriesshire Hunt the cordial thanks of the Directors for this handsome contribution to the prize fund.

*Sheep-Dipping Order.*

A Special Committee appointed to consider the provisions of the Sheep-Dipping Order of the Board of Agriculture recommended (1) that no change be made in the dipping period; (2) that the Board of Agriculture be approached with the suggestions that forms of declaration should be more easily obtainable, and that the general carrying out of the Dipping-Order should, in the way of declarations, be made as little vexatious as possible.

The recommendations were adopted unanimously.

*Studs in Traction-Engines when Roads are Frost-Bound.*

A Special Committee on this subject recommended that an effort should be made to get the Act of Parliament altered so as to permit the use, where necessary, of approved studs on locomotives drawing thrashing tackle during frosty weather, but that Local Authorities should have power to regulate the passage of locomotives over roads on the break up of frost, or at times when roads are in a very soft condition.

This was approved.

### MEETING OF DIRECTORS, 6TH APRIL 1910.

C. H. SCOTT PLUMMER in the Chair.

*Dumfries Show, 1910.*

Directors were appointed to act as Attending Members on the various classes of live stock.

*Sheep-Dipping Order.*

The following letter from the Board of Agriculture was read :—

“ BOARD OF AGRICULTURE AND FISHERIES  
4 WHITEHALL PLACE, LONDON, S.W.,  
12th March 1910.

“ SIR,—I have submitted to the Board of Agriculture and Fisheries your letter of the 3rd inst., communicating certain Recommendations as to the Sheep-Dipping (Scotland and North of England) Order of 1907 which were approved by the Directors of your Society on the 2nd inst.; and with regard to the second Recommendation as to the forms prescribed by the Order, I am to explain as follows :—

“ The question of the supply of forms to sheep-owners and others in any particular district is one for the Local Authority concerned, and the Board themselves have not been informed of any general difficulty being experienced in obtaining forms from Local Authorities or their Officers. If your Society is in a position to supply the Board with the particulars of any actual case of difficulty which has arisen, the Board will be happy to investigate it.

“ The Board are anxious that the forms necessary for the proper administration of the Order should be as few and as simple as the circumstances will admit of, and the matter has been carefully considered from this point of view. Such amendments of the forms at present prescribed by the Order as have been suggested to the Board have been open to the objection that their adoption would be calculated to raise fresh difficulties in other directions, especially those which have reference to the forms connected with the enforcement of the restrictions on the exposure of sheep at markets, and the Board are doubtful whether any general advantage would be gained by their adoption. The Board will, however, be glad to consider any specific suggestions which your Directors may desire to place before them in this connection.—I am, Sir, your obedient Servant,

A. W. ANSTRUTHER, *Assistant Secretary.*

THE SECRETARY,  
Highland and Agricultural Society of Scotland.”

Dr SHIRRA GIBB moved that the Committee appointed on 2nd February last to consider the whole question of the Sheep-Dipping Order be thanked for their services and discharged. Mr MURRAY seconded.

The motion was unanimously agreed to.

*Vacancy on Board of Directors.*

The Directors took into consideration the nomination of a member to fill the vacancy in the list of Ordinary Directors, caused by the death of Mr John Cran, Kirkton, Inverness.

Memorials were submitted from the Morayshire Farmers' Club, and from members of the Society in the counties embraced in the Inverness Show District, in favour of the nomination of Mr George A. Ferguson, Surradale, Elgin.

Mr MIDDLETON moved the nomination of Mr J. Huntly Macdonald, Torbreck, Inverness. Mr GORDON seconded.

Mr GORDON DUFF proposed Mr George A. Ferguson, Surradale, Elgin. Mr HEDLEY SMITH seconded.

On a show of hands being taken, Mr Middleton's motion was carried by 8 to 6.

Mr Huntly Macdonald will, in accordance with the Bye-Laws, be recommended by the Board to the General Meeting in June next for election as an Ordinary Director in the place of the late Mr Cran.

*Veterinary Examination of Entire Horses.*

The following Resolution from the East Lothian Farmers' Club was read : “ That in the opinion of this Club all Entire Horses should be subjected to Veterinary Examination for hereditary disease before being put before Judges at a Show.”

The Board did not see its way to take any action in the matter.

*Nomination of Directors by Show Districts.*

A letter was read from Colonel M'Inroy, C.B., of The Burn, pointing out that all the Ordinary Directors for the Aberdeen Show District were selected from the North, and that for years no representative of either Forfar or Kincardine had been on the Board.

The Directors, while sympathising with Colonel M'Inroy's very natural desire to

see the Southern part of the District represented on the Board, recognise that the nomination of Directors rests solely with the members of the Society in the several Districts, and cannot see their way to take action in the matter.

*Members' Pavilion in the Showyard.*

The Finance Committee recommended: (1) That consideration of the question of providing a new Pavilion for Members in the Society's Show be deferred for a year; that at the Dumfries Show the Press and Awards be removed from the present Pavilion, and the space thus set free be formed into a nicely furnished private writing-room for Members, the present Members' room being available as a conversation and rest room for Members; and that the Finance Committee be instructed to report to an early Meeting of Directors in the Session 1910-1911 as to what further changes, if any, should be made in the Members' Pavilion. (2) That the Treasurer's Office be removed from its present position to the entrance gates.

The Minutes were approved of, with the exception of the recommendation as to the Treasurer's Office, which was remitted back to the Finance Committee for further consideration and report.

MEETING OF DIRECTORS, 4TH MAY 1910.

C. H. SCOTT PLUMMER in the Chair.

*Dumfries Show, 1910.*

*South of Scotland Beekeepers' Association.*—A letter was read from the Secretary of the South of Scotland Beekeepers' Association applying for space in the Showyard for demonstrations in Beekeeping.

The application was granted.

*Show of 1912.*

A letter was read from the Town Clerk of Perth intimating that the Town Council had granted the use of the South Inch as a site for the Showyard, and also a supply of water in the Showyard free of charge.

The Secretary was instructed to convey the cordial thanks of the Board to the Town Council of Perth.

*Publications.*

On the recommendation of the Publications Committee payments to writers of articles in the 'Transactions,' amounting to £169, 10s., were authorised.

*Departmental Committee on Swine Fever.*

A letter was read from Mr Percy S. Lawrie, Secretary to the above Committee, stating that the Committee are willing to receive evidence from two members of the Society bearing on the subject of the inquiry.

Mr John M'Hutchen Dobbie, Campend, and Mr W. S. Ferguson, Pictstonhill, were appointed to give evidence on behalf of the Society before the Committee in London on the 28th of June.

*National Diploma in Agriculture.*

The Secretary submitted the Report on the results of the recent Examination at Leeds for the National Diploma in Agriculture.

*Letters from Colonel M'Inroy, C.B., of The Burn.*

Letters from Col. M'Inroy of The Burn, Edzell, of date the 11th and 21st April, referring to the working of the Bye-laws for the nomination of Ordinary Directors, were submitted. The Directors decided that they could not take any action in the matter.

*Finance.*

The Secretary read the Minutes of the Finance Committee and the Board of Directors of 2nd June 1909, anent the adjusting of a retiring allowance to Mr John Macdiarmid, the Society's Senior Clerk, who has been forty-three years in the Society's office, and who had expressed a desire to retire from his position when this could be conveniently arranged. The Secretary stated that Mr William Simpson, Messenger to the Society, also wished to be relieved of at least part of his duties.

ere long, and had expressed the hope that some provision would be made for him in his retirement.

After deliberation the Committee resolved to recommend that it be remitted to the Committee to consider and report to the Board upon (1) the steps to be taken for filling up vacancies that may be caused by the retirement of the Senior Clerk and the Messenger, and (2) a general scheme for the providing of retiring allowances to the Society's officials.

#### MEETING OF DIRECTORS, 1st JUNE 1910.

C. H. SCOTT PLUMMER in the Chair.

##### *Death of His Majesty King Edward.*

The CHAIRMAN spoke in fitting terms of the great loss which the Empire had sustained by the death of King Edward, referring in particular to His Majesty's valuable services to the cause of Agriculture. The Chairman stated that Addresses of Condolence to King George V. and Queen Alexandra would be moved at the General Meeting of Members to be held that day, but he proposed that the Directors record in their minutes an expression of the grief with which they learned of the death of the King.

This was approved.

##### *Dumfries Show, 1910.*

*Concert for Attendants.*—Authority was given to the Secretary to have arrangements made for the usual Concert for Attendants on Wednesday evening.

*Dumfries and Galloway Club, Dumfries.*—A letter was submitted from the Secretary of the Dumfries and Galloway Club intimating that the Directors and Office-bearers of the Society had been elected Honorary Members of the Club during the week of the Show.

The cordial thanks of the Directors were conveyed to the Dumfries and Galloway Club.

*Licence to hold Show.*—A letter was submitted from the County Clerk of the Stewartry of Kirkcudbright intimating that the Local Authority of that County had granted a Licence, in terms of Section 15 of the Swine Fever (Regulation of Movement) Order of 1908, to the Society for holding the Show at Park Farm, Maxwelltown, during the month of July 1910.

*Electricity in Crop-Growing.*—Provost Lennox reported that he had been authorised by Miss Dudgeon to intimate that the Directors and Members of the Society would be made heartily welcome during the Show week at Lincluden House to inspect important experiments being conducted there in the growing of crops under the influence of electricity.

##### *Show of 1913.*

A letter was read from the Town Clerk of Lanark conveying an invitation from the Provost, Magistrates, and Town Council of that Burgh to hold the Society's Show for 1913 at Lanark.

Consideration of the letter was delayed till next year.

##### *Shetland Pony Classes.*

Letters were submitted from Mr John Storey, Glasgow, objecting to the introduction of a Saddle Class for Shetland Ponies in the Highland Show. It was resolved to remit the letters to the Shows Committee for consideration, when they meet to revise the Prize List for the Inverness Show of 1911.

##### *British Export Trade in Live Stock.*

A letter was read from the Secretary of the Departmental Committee appointed by the Board of Agriculture to inquire and report on the British Export Trade in Live Stock, inviting the Society to submit evidence to the Committee.

Mr William Taylor, Park Mains, and Mr C. M. Cameron, Balnakyle, were appointed to give evidence on behalf of the Society.

##### *Dumfries Agricultural Society.*

A letter was read from the Secretary of the Dumfries Agricultural Society stating that, owing to the Highland Show being held at Dumfries this year, the local Society

are not holding their usual Stock Show, but that they propose holding a Dairy Produce, Poultry, and Root Show, for which a grant of medals would be much appreciated.

The Board agreed to give a grant of three Silver Medals.

*Forestry Examination.*

The SECRETARY stated that on account of only one candidate having entered, the Forestry Examination for this year had been abandoned.

After discussion as to whether in future this examination should be held annually or every alternate year, the matter was remitted with powers to the Education Committee.

*Harvest Weather Forecasts.*

A letter was read from the Meteorological Office giving conditions for the supplying of weather forecasts during the hay and corn harvests.

*Finance.*

On the recommendation of the Finance Committee it was resolved (1) that on the retirement of Mr Macdiarmid, Mr Edward M. Cowie, Second Clerk, be promoted to the office of Senior Clerk, and (2) that the office of Second Clerk be advertised, the salary to begin at £150 a-year.

*Show of 1912.*

*Local Fund.*—A letter was read from the County Clerk of Perth intimating that, on account of the strong financial position of the Society, the County Council of Perth did not see its way to arrange for a voluntary assessment in aid of the funds of the Show.

A letter was submitted from the County Clerk of Forfar intimating that the Commissioners of Supply of the County of Forfar had resolved to recommend to the County Council not to levy a voluntary assessment in aid of the expenses of the Show.

Letters were read from the County Clerks of Fife and Kinross intimating that their County Councils had agreed to a voluntary assessment in aid of the Show Funds.

Regret was expressed by several members of the Board at the contents of the letters from the counties of Perth and Forfar, and also that the city of Perth had not seen its way to raise a subscription towards the funds of the Show.

After discussion Dr WILSON moved as follows:—"That in view of the letters received from the County Clerks of Perth and Forfar intimating that their counties do not see their way to contribute to the funds of the Show by means of voluntary assessments on owners of lands and heritages, the Secretary be asked to write to the County Clerks expressing the hope that their County Councils may see their way to reconsider the matter, and say that if no contributions are made towards the expenses of the Show from the counties of Perth and Forfar, the Directors, in view of their standing resolution regarding satisfactory financial arrangements, will be compelled to hold themselves free to consider invitations for the holding of the Show in another centre in the Perth District."

Mr FERRIE seconded.

Mr RALSTON moved an amendment to the effect that the Society do not go further in the meantime than to express the hope that the counties of Perth and Forfar will reconsider the matter, at least to the extent of endeavouring to raise private subscriptions in aid of the Show, if they do not agree to revive the voluntary assessment.

Mr FLETCHER seconded.

On a division Dr Wilson's motion was carried by 10 votes to 2 for Mr Ralston's amendment.

MEETING OF DEPUTATION OF DIRECTORS HELD IN SHOWYARD,  
DUMFRIES, 19TH JULY 1910.

Mr MIDDLETON in the Chair.

The SECRETARY stated that the Meeting had been specially called to consider what was to be done with two animals in the Showyard—an Aberdeen Angus bull, No. 68 in Catalogue, belonging to Mr John Macpherson, Milnes, Perth, and a two-year-old Shorthorn heifer, No. 41 in Catalogue, belonging to the Earl of Moray, Doune Lodge, Doune, both infected with ringworm. He said the two animals had

been put into a separate part of the Showyard, and were quite isolated from the rest of the live stock.

Certificates were submitted from Mr James Lindsay, M.R.C.V.S., the Society's Veterinary Inspector for the Show, stating that he had examined both animals and found them infected with ringworm, and a source of danger to the other animals in the Showyard.

It was unanimously resolved to uphold the Veterinary Inspector's Certificate, and to give the owners the option of removing the animals from the Showyard at once or letting them remain as they were, isolated in the Yard, until the end of the Show.

### MEETING OF DEPUTATION OF DIRECTORS HELD IN SHOWYARD, DUMFRIES, 20TH JULY 1910.

C. H. SCOTT PLUMMER in the Chair.

#### *Protests.*

The following Protest by Mr John M'G. Petrie, Glenlogie, Alford, was read :—

“MEMBERS' PAVILION,  
SHOWYARD, 19th July 1910.

“I hereby protest against the decision in the Championship Class of Aberdeen-Angus Cattle, in so far as it relates to the awarding of the Aberdeen-Angus Cattle Society Gold Medal for the best breeding animal of the breed. My first prize aged bull, “Metaphor,” was awarded the President's Medal as the best animal of the breed in the whole section. I therefore claim the Breed Society's Gold Medal.—  
Yours, &c., (Signed) JOHN M'G. PETRIE.”

The SECRETARY stated that Mr Petrie's bull was placed first in the Aged Bull class, and was ultimately awarded the President's Champion Medal as “the best Aberdeen-Angus animal in the Showyard,” in competition with all other animals of the breed in the Show, including the cow that had received the Gold Medal offered by the Aberdeen-Angus Cattle Society for “the best breeding animal of the breed in the Showyard.”

Mr Murray, one of the judges, stated that the judges gave the President's Medal to the Aberdeen-Angus bull as being the best animal of the breed in Showyard form, without special reference to breeding conditions. They were convinced, however, that the cow was superior to the bull as “a breeding animal of the breed,” and so after due deliberation awarded her the Gold Medal of the Aberdeen-Angus Cattle Society.

Mr M'HUTCHEON DOBBIE moved that the award of the judges be sustained. Mr DOUGLAS seconded. Mr DUTHIE moved that the award of the Gold Medal pass to the bull. Mr GORDON seconded.

On a show of hands being taken, Mr M'Hutcheon Dobbie's motion was carried by 20 to 5.

### MEETING OF DIRECTORS, 2ND NOVEMBER 1910.

C. H. SCOTT PLUMMER in the Chair.

#### *The Late Mr Jonathan Middleton.*

The CHAIRMAN referred in feeling terms to the death of Mr Middleton, Glastullich, Ross-shire, and moved that the Directors record in their Minutes an expression of the deep regret with which they received the intimation of his death, and of their sense of the long and valuable services rendered by him to the Society.

This was agreed to.

#### *Chairman of the Board for 1910-1911.*

On the motion of Mr GORDON, Mr C. H. Scott Plummer of Sunderland Hall was unanimously re-elected Chairman of the Board for the ensuing year.

Mr Scott Plummer thanked the Board for the honour conferred on him.

*Standing Committees.*

The Standing Committees for the ensuing year were appointed, the names to be printed as usual in the Premium Book.

*Representatives on other Bodies.*

The following were appointed representatives of the Society on the Boards of Management of the undernoted institutions for the ensuing year—viz.: *West of Scotland Agricultural College*—Very Rev. John Gillespie, LL.D., Mouswald Manse, Ruthwell, R.S.O.; Mr John M. Martin, Crauford, Lasswade. *Edinburgh and East of Scotland College of Agriculture*—Dr R. Shirra Gibb, Boon, Lauder; Mr James Macdonald, Secretary. *Aberdeen and North of Scotland College of Agriculture*—Mr T. Gordon Duff of Drummur, Keith; Mr William Duthie, Tarves. *Royal (Dick) Veterinary College*—Mr John M. Martin, Crauford, Lasswade. *Glasgow Veterinary College*—Mr Alexander Cross of Knockdon.

*Dumfries Show, 1910.*

*Accounts.*—An Abstract of the Accounts of the Dumfries Show was submitted, showing a probable surplus of about £550.

*List of Awards.*—The List of Awards was laid on the table.

The Board at this stage dealt with the portions of the Minutes of the Shows Committee of 1st November relating to the Dumfries Show.

*Shetland Ponies.*—It was stated that, as the Special Prize offered at Dumfries for a Saddle Class of Shetland Ponies had not been offered for the Inverness Show, the letters from Mr John Storey, Glasgow, regarding that class did not have to be dealt with.

The Board approved of the recommendations of the Shows Committee.

*Vacancy in the List of Directors.*

It was resolved that the Directors of the Inverness Show District be asked to recommend to next Meeting of the Board of Directors a member of the Society to fill the vacancy in the Board of Directors caused by the death of Mr Jonathan Middleton.

*Inverness Show, 1911.*

*Forage.*—The Secretary was instructed to advertise for tenders for the supply of forage. The following Committee was appointed to consider the tenders and report to the Board—viz., Mr Malcolm (Convener), Mr Huntly Macdonald, Mr Gordon, Mr W. S. Ferguson, Mr C. M. Cameron, Mr Macdonald (Morriston), Mr Aitken, and Mr M'Caig.

*Hotel Accommodation.*—The Secretary stated that he had made arrangements with the Station Hotel, Inverness, on similar terms to those for the Show of 1901.

*Forestry Exhibition.*—It was resolved that space in the Showyard for a Forestry Exhibition, and £20 for prizes for timber, be granted to the Royal Scottish Arboricultural Society on the same conditions as at the Dumfries Show.

*Prize List.*—The Secretary stated that the Shows Committee had met on 1st November, when they had considered various matters relating to the Dumfries Show, and had revised the Premium List for the Inverness Show.

It was proposed that as usual their Report be printed and issued for consideration in detail at next Meeting of the Board.

The Board approved of this course.

*Special Prizes.*—Various Special Prizes were accepted, and votes of thanks accorded to the donors.

*Show of 1912.*

*Centre for Show.*—Applications were submitted for the holding of the Society's Show of 1912 at the following centres—viz., Dunfermline, Kirkcaldy, Ladybank, Cupar Fife, and Kinross. The following were appointed as a deputation to visit these Centres, and report—viz., the Chairman of the Board, Sir John Macpherson Grant, Bart., Mr W. S. Ferguson, Mr W. T. Malcolm, and Mr Burns, who was Secretary and Consulting Engineer.

*Local Subscriptions.*—It was stated that while the County Councils of Fife and Kinross had resolved to raise subscriptions in aid of the Show by means of voluntary assessments on owners of lands and heritages, the County Councils of Perth and Forfar had after reconsideration decided not to raise any subscription.



*National Horse Supply.*

A resolution was read from the Council of the Hunters' Improvement Society, urging the necessity of immediate action to develop the industry of Breeding Light Horses in the United Kingdom.

The Board did not see its way to take any action in the matter.

*National Diploma in Dairying.*

The SECRETARY submitted the Reports on the Examinations for the National Diploma in Dairying held at Reading and Kilmarnock in the end of September.

*Milk Records.*

The Milk Records Committee recommended (1) that a grant of £200 be given to the Scottish Milk Records Committee for 1911; (2) that the support of the Society be given to the application made for a grant from the Development Fund for Scottish Milk Records; and (3) that a Conference with the Scottish Milk Records Committee be held on 7th December.

This was agreed to.

*Finance.*

The Finance Committee submitted recommendations as to retiring allowances for the Society's Staff, it being provided that, subject to the approval of the Board of Directors at the time, retiring allowances be granted to the officials on retirement at the age of sixty-five years, or at such other age as the Board of Directors may sanction.

Mr MARTIN moved that it be remitted back to the Finance Committee to consider whether it was necessary or desirable to insert an age limit.

Mr JOHN MARE seconded.

On a division Mr Martin's motion was lost, and the recommendations of the Finance Committee were otherwise unanimously approved.

## MEETING OF DIRECTORS, 7TH DECEMBER 1910.

C. H. SCOTT PLUMMER in the Chair.

*Inverness Show, 1911.*

*Prize List.*—The Reports of the Shows Committee of 1st November and Minutes of 7th December 1910 were submitted.

classes for yearling and two-year-old Hackney colts and fillies be discontinued; (3) that consideration of a class for Middle White Pigs be delayed for a year; and (4) that it be left with the Secretary to arrange with the Aberdeen and North of Scotland College of Agriculture as to a demonstration on Bottling Fruit at the Inverness Show.

*Highland Ponies.*—After discussion it was resolved to delay till next Meeting of the Board the consideration of the conditions for the classes of Highland Ponies.

*Hackneys.*—Mr MARTIN moved that instead of deleting the classes for two-year-old and yearling fillies and two-year-old and yearling colts, they should combine colts and fillies, making other two classes for Hackneys. Mr CAMERON seconded.

Mr ANDERSON moved that the recommendation of the Shows Committee be adhered to. Mr W. S. FERGUSON seconded.

On a show of hands being taken, Mr Anderson's motion was carried by 14 to 5.

The recommendations of the Shows Committee were otherwise unanimously adopted.

*Aberdeen-Angus Cattle Society's Gold Medal.*—A letter was read from the Secretary of the Aberdeen-Angus Cattle Society stating that their Medal is offered for the best animal in the breeding classes, and that breeding animals shown as extra stock are eligible to compete.

The conditions attaching to the Medal, as here explained, were approved.

*Special Prizes.*—A number of Special Prizes were accepted, and votes of thanks accorded to the donors.

*Local Fund.*—A letter was read from the Secretary of the Wester Ross Farmers' Club intimating that his Club had voted a grant of £25 in aid of the Inverness Show funds. The Secretary was instructed to convey the thanks of the Board to the Club.

*Show of 1912.*

The Chairman, as one of the Deputation appointed to report as to the best site for the Show of 1912, asked the Directors, on behalf of the Deputation, for delay in submitting their report till next Meeting of the Board.

This was agreed to.

*Report by Chemist on Deficient Samples.*

The Society's Chemist submitted his usual monthly Report on deficient samples of Manures and Feeding-Stuffs analysed by him for Members since the Meeting of the Board in May.

After considerable discussion as to the publication in the press of the names of sellers of spurious Manures and Feeding-Stuffs, it was resolved to bring the matter up for full consideration at a future Meeting of the Board, the Secretary being instructed to ascertain the action taken by the Royal Agricultural Society of England.

*Vacancy on Board of Directors.*

A Report was submitted from the Directors in the Inverness Show District nominating Mr Macintyre, who is already an Extraordinary Director, an Ordinary Director in room of the late Mr Jonathan Middleton, and Provost Birnie, Inverness, as an Extraordinary Director in the place of Mr Macintyre.

The Board resolved to recommend these nominations to the General Meeting in January.

*Advertising General Meetings of the Society.*

The Board resolved (1) that the dates of General Meetings and note of business to be dealt with, including note of all motions intimated to the Secretary, be advertised at least once in each of the two Scotch agricultural newspapers, and in 'The Scotsman,' 'Glasgow Herald,' and 'Dundee Advertiser'; (2) that this arrangement be applied to the General Meeting to be held on 11th January 1911.

*Milk Records.*

The Report of a Conference with representatives of the Scottish Milk Records Committee held on 7th December was read.

The Report stated that the hope was expressed at the Conference that, in the event of the application for a grant in aid of Milk Records in Scotland from the Development Fund being unsuccessful, the grant from the Society might be continued after 1911.

*Finance.*

On the recommendation of the Finance Committee it was resolved (1) that Mr A. S. Cavers, Menzies Estate Office, Aberfeldy, be appointed Second Clerk to the Society at a commencing salary of £150 a-year; and (2) that honoraria of £50 and £25 be given respectively to Mr Macdiarmid and Mr Cowie, the Society's Clerks, for extra duties during the Secretary's temporary absence from illness.

*Inverness Show, 1911.*

Mr W. S. FERGUSON moved—"That the judges nominated for Clydesdale Horses be requested to decline acceptance if they intend to exhibit in any of the Clydesdale Horse Classes."

The motion was seconded by Mr MALCOLM and unanimously agreed to. Judges for the various classes of Stock were then appointed.

MEETING OF DIRECTORS, 11TH JANUARY 1911.

C. H. SCOTT PLUMMER in the Chair.

*Inverness Show, 1911.*

*Forage.*—It was resolved to accept the offer of John Mackenzie & Co., Union Street, Inverness, to supply forage for the Inverness Show.

*Veterinary Surgeon.*—On the motion of Sir JOHN MACPHERSON-GRANT, seconded by Mr MACDONALD, Mr William Logan, M.R.C.V.S., Inverness, was unanimously appointed Veterinary Inspector for the Inverness Show, on the usual conditions, the fee being £10, 10s.

#### *Highland Pony Classes.*

The CHAIRMAN stated that at last Meeting of the Board it was resolved to postpone till this Meeting consideration of the recommendation of the Shows Committee that there be separate classes for the heavier and lighter types of Highland Ponies, this meeting also to decide as to the description and general regulations attaching to the classes.

Letters relating to the subject were read from the Marquis of Tullibardine, Lord Arthur Cecil, Mr J. H. Munro Mackenzie, and Mr Robertson, Fodderty.

Lord LOVAT urged that there should be only one section for Highland Ponies, but added that they might have separate classes for Ponies bred in the Islands, not to be called Highland Ponies. He moved accordingly.

Mr P. B. MACINTYRE seconded.

Dr DOUGLAS moved as an amendment the adoption of the recommendation of the Shows Committee that there be separate sections for the two types of Highland Ponies.

Mr CROSS of Knockdon seconded.

On a show of hands being taken, 13 voted for the motion and 13 for the amendment. The Chairman gave his casting vote for the amendment, which therefore became the finding of the Meeting.

After discussion it was resolved that the sections be described as "heavy" and "light," the height not to exceed 14.3 hands in the former and 14.2 hands in the latter.

Lord Arthur Cecil was appointed as Judge of Highland Ponies.

#### *Show of 1912.*

The Special Committee appointed to report on the centre for the Show of the Society for 1912 recommended that the Show be held at Cupar-Fife.

The CHAIRMAN moved the adoption of the Committee's recommendation, which was seconded by Mr F. W. CHRISTIE, and unanimously adopted.

#### *Show of 1913.*

Mr FERGUSON moved: "That provided a suitable site is available, and satisfactory financial and other arrangements can be made, the Show of 1913 be held in the Glasgow district. Mr ALEX. CROSS seconded.

The resolution was unanimously adopted.

#### *District Shows—Veterinary Inspection of Stallions.*

Mr JOHN MURRAY moved: "That in future it be a condition of Stallions receiving the Highland and Agricultural Society's District Premium Grants, that they be examined by a Veterinary Surgeon and certified sound, and that it be remitted to a Committee to consider and report to an early Meeting of the Board as to how the resolution may best be carried out."

Mr MARR seconded.

Mr W. S. FERGUSON moved that the matter remain as at present.

As the amendment was not seconded, the motion became the finding of the Meeting.

The Committee was appointed as follows: Mr Murray (Convener); Dr David Wilson of Carbeth; Mr John McCaig of Belmont; Mr W. S. Ferguson, Pictstonhill; Mr John Marr, Uppermill; Mr J. Ernest Kerr of Harviestoun; Mr W. T. Malcolm, Dunmore; Mr James Stenhouse, Turnhouse; Mr C. M. Cameron, Balnakyle; Mr H. M. Leadbetter, Knowesouth; Mr J. Campbell Murray, Glasgow; Mr G. A. Ferguson, Surradale.

#### *Trial of Potato-Diggers.*

It was reported that the Special Committee appointed to conduct the trial of Potato-Diggers, to be held next autumn, had adjusted Regulations for the trial, which will take place in the Edinburgh District.

#### *Members' Pavilion.*

The SECRETARY stated that draft plans for the new Members' Pavilion in the Society's Show had been submitted to the Finance Committee that day, and that the Committee recommended that a member of the Board from each of the Show districts

be added to the Committee for considering and reporting upon the plans to next Meeting of the Board.

This was approved, and the following were added to the Finance Committee for the purpose stated—viz.: Mr David Ferrie, Mr C. M. Cameron, Mr William Duthie, Mr John M'Caig, Mr J. Campbell Murray, Mr H. M. Leadbetter, Mr F. W. Christie, and Mr W. T. Malcolm.

#### MEETING OF DIRECTORS, 1st FEBRUARY 1911.

C. H. SCOTT PLUMMER in the Chair.

##### *Inverness Show, 1911.*

*Highland Ponies.*—The SECRETARY stated that the resolution passed at last Meeting of the Board raising the maximum height of Highland Ponies to 14.3 hands was incompetent, on account of its being inconsistent with the Regulations of the Polo Pony Society, whose offer of £15 towards the prizes for Highland Ponies had been previously accepted. It was therefore agreed to revert to 14.2 hands as the maximum height.

*Catering.*—It was resolved that the Caterers in the Showyard be: James Mitchell, Union Buildings, Aberdeen (Committee Booth); John Brodie, Cross Keys Hotel, Dalkeith; Thomas White, Ltd., 7 and 9 Gordon Street, Glasgow; John Smith & Sons, 84 Gordon Street, Glasgow. Tea Pavilion—The Inverness Branch of the British Women's Temperance Association.

*Hackney Classes.*—The SECRETARY stated that the offer of the Gold Medal by the Hackney Horse Society fell through on account of the total amount of prize money offered for hackneys and ponies not amounting to the minimum sum required by that Society—viz., £150.

##### *Science.*

The Science Committee recommended (1) that the Schedule of Unit Prices of Manure and Feeding-Stuffs for the current year, as now revised, be printed and issued as usual; (2) that the Society's Chemist be asked to submit to the Science Committee full particulars of cases of important deficiencies in analysis, so that the Committee may report to the Board on the expediency of the names of the vendors and full details being issued to the members of the Society in confidential prints; and (3) that it be remitted to the Milk Records Committee to investigate and report upon interesting points arising in the returns obtained in Milk Records subsidised by the Society.

This was agreed to.

##### *Improvement of Live Stock.*

On the motion of the CHAIRMAN, seconded by Dr WILSON, it was resolved that a Committee be appointed to consider and report as to what steps should be taken to secure for Scotland a fair share of such portion of the Development Fund as may be available for encouraging improvement in farm live stock.

The Committee was appointed as follows: Mr Scott Plummer (Convener), Mr Douglas, Mr W. S. Ferguson, Mr David Wilson, Mr Cross, Dr Shirra Gibb, Mr Duthie, Captain Gordon, Mr Malcolm, Mr Ernest Kerr, and Mr P. B. Macintyre.

##### *Agricultural Research.*

A letter was submitted from the Royal Society of Edinburgh inviting the Society to appoint a representative of the Society on a Committee elected by the Royal Society to promote research of a fundamental character relating to Agriculture.

After discussion, it was resolved to delay replying to the letter from the Royal Society, and to summon representatives of the Scottish Agricultural and Veterinary Colleges to a Conference with representatives of this Society as recommended by the Science Committee.

##### *Finance.*

On the recommendation of the Finance Committee it was resolved that (1) application be made to the County Councils in the Glasgow Show District for the raising of the usual contributions to the local fund for the Show of 1912, by means of voluntary assessments on owners of lands and heritages; and (2) that plans for a new Pavilion for Members in the Shows of the Society be approved, the additional cost involved being likely to be rather less than £100 a year.

## PROCEEDINGS AT GENERAL MEETINGS.

GENERAL MEETING, 1st JUNE 1910.

The EARL OF STAIR, President of the Society, in the Chair.

### *King Edward VII.*

Addresses of Condolence to His Majesty King George V. and Her Majesty Queen Alexandra upon the death of King Edward VII. were moved by the PRESIDENT and adopted.

The Addresses are appended to the biographical sketch of the late King at the opening of this volume (pp. 16, 17).

### *Election of Office-Bearers.*

The following office-bearers of the Society were elected for the ensuing year:—

*President*—Lord Lovat, C.B., M.V.O., Beaufort Castle, Beauly.

*Vice-Presidents*—Earl Cawdor, Cawdor Castle, Nairn; Sir Hector Munro of Foulis, Bart., A.D.C., Dingwall; Lochiel, Achnacarry, Spean Bridge; Mackintosh of Mackintosh, Moy Hall, Inverness.

*Ordinary Directors*—Messrs James Stenhouse, Turnhouse, Cramond Bridge; James Wilson, Westburn, Cambuslang; J. Ernest Kerr of Harviestoun Castle, Dollar; David Ferrie, Farbroath, Cupar-Fife; E. Douglas Paton, Braehead, St Boswells; Alex. T. Gordon, yr. of Newton, Inch; J. Douglas Fletcher of Rosehaugh, Avoch; Major F. J. Carruthers of Dormont, Lockerbie; J. Huntly Macdonald, Torbreck, Inverness.

*Extraordinary Directors*—Provost Gossip, Inverness; Messrs D. P. Henderson of Stemster, Halkirk, Caithness; William Stirling of Fairburn, Muir of Ord; J. P. Grant of Rothiemurchus, Aviemore; William Macdonald, Morayston, Inverness; Donald Innes of Sandside, Thurso; James F. Hardie, Skibo Estates Office, Clashmore, Dornoch; Thomas Wilkinson Cuthbert, Achindunie, Alness; P. B. Macintyre, Mains of Findon, Conon Bridge; George A. Ferguson, Surradale, Elgin; James I. Davidson, Saughton Mains, Corstorphine; John M. Martin, Craufurd, Lasswade; Donald McLean, Sutherland Estates Office, Golspie; William T. Malcolm, Dunmore, Larbert; Robert Paterson, Hill of Drip, Stirling; W. H. Ralston, Dunragit Estate Office, Dunragit; C. M. Cameron, Balnakyle, Munlochy, Ross-shire; Athole S. Hay of Marlfield, Roxburgh; F. W. Christie, Dairsie Mains, Dairsie, R.S.O.; J. Campbell Murray, Higgs Castle, Pollokshields.

The PRESIDENT asked the members to join with him in heartily congratulating their esteemed Secretary, Mr Macdonald, on his happy recovery from his long illness. Those of them who were present at the Stirling Show last year noticed that he was conspicuous only by his absence, and he had been away from duty for most of the year. Now, however, they were glad to find him restored to health and among them once more. They should also congratulate Mr Macdiarmid on the excellent way in which he had carried on the work.

### *Dumfries Show, 1910.*

The Rev. Dr GILLESPIE reported on the progress of the arrangements for the Show of this year, to be held at Dumfries on Tuesday, 19th July, and three following days. There was every prospect of a most successful show at Dumfries if they got good

weather. The County Councils of Dumfries and Galloway had risen to the occasion, and had contributed their voluntary assessments with much cordiality. They had had every encouragement from these bodies. The town of Dumfries, and more especially the Town Council, and its Provost who was a member of their Board and was with them, had done their very best to make arrangements for the Show, and to assist in having them carried out.

#### *Inverness Show, 1911.*

Mr FLETCHER of Rosehaugh reported that the arrangements in connection with the Show of 1911, to be held at Inverness, are making satisfactory progress.

#### *Nomination of Directors.*

Mr ANDREW BERTRAM, Townhead, moved: "That the senior Ordinary Directors who retire annually, and are members of the Society under the second bye-law of Charter 1834, and who pay the smaller subscription, shall not be eligible for re-election until a term of office has expired—namely, four years." Mr Bertram said that, if his motion was carried, it could not fail to result in a great deal of good to the Society in bringing in new blood. It was a very delicate thing to oppose a Director who was retiring. He did not suggest that the Directors were not doing all in their power for the interests of the Society, but he thought the honours should go round.

Mr SHARP, Ewingston, seconded.

Mr ANDERSON, Kippendavie, said he had no objections to the honours going round. At the same time it was for the Show districts to say who were to represent them. He moved the previous question.

The Rev. Dr GILLESPIE seconded. They should, he said, have a much wider expression of opinion than was possible at that meeting before they resolved upon such a change. New blood might be desirable, but he would not disqualify the old blood. They should leave the members of the Society a perfectly free hand to choose those whom they liked. Apparently some of the members in the East felt the delicacy of attacking the old men. In the West they had no hesitation, and when they wanted a change they had it. It would be extremely rash, in a small meeting like that, to agree to such an important change in their procedure.

Mr ELDER, Stevenson Mains, said that, while he had a good deal of sympathy with the proposal, he thought it would be a very rash proceeding to come to a finding on such an important matter at that meeting. He agreed with Dr Gillespie that, before a subject like that was finally decided upon, there should be a full meeting of the Society called for the purpose. He suggested that a special circular should be issued to the members, and have the subject thoroughly threshed out at the Dumfries Show. In the circumstances he would ask both sides to withdraw their motions, and allow the matter to go to the members.

Mr SCOTT PLUMMER said he intended to support the amendment, although he must say he had considerable sympathy with the motion. It was, no doubt, perfectly true that, however much gentlemen in a certain district might wish for a change of representation to get some new blood into the directorate, there was very great hesitation in raising opposition to the sitting member. He sympathised with the motion in that respect. If such a change as this was desired by the members of the Society he would support it. But he did not think the change should be limited to those who paid the smaller subscription. He agreed with Dr Gillespie that it would not be desirable to come to a decision on that occasion.

Mr BERTRAM said he would like to learn from the Secretary if, by the Charter of 1834, they were bound to send out a circular to the members before a general meeting.

The SECRETARY said it had been customary to send circulars to the members in the three Lothians, and to those in Fife. That arrangement was disliked by the members in the other counties, and the result was that the meetings were now called by advertisement in the newspapers.

Mr Bertram's motion was then withdrawn, on the understanding that the subject might be discussed at a future meeting.

#### *Show of 1912.*

Mr D. FERRIE, Parbroath, reported on the arrangements being made for the Show of 1912, which it was intended should take place at Perth. The Town Council of Perth had not seen their way to make any financial contribution to the funds of the Show, but had granted the Society the use of the South Inch as a site for the Show.

and had agreed to give a supply of water free of charge. But the Directors, at their meeting that day, had under consideration letters from the County Councils of Perth and Forfar, intimating that they did not see their way to contribute to the funds of the Show by means of local subscriptions, and after full consideration adopted the resolution printed in the Report of the Board of Directors held that day. Mr Ferrie added that both the County Councils of Fife and Kinross had agreed to collect a voluntary assessment, as they had done in the past.

Mr ANDERSON, Kippendavie, seconded the motion.

Mr HEDLEY SMITH, Whittingehame, said he thought they should go on and do without their contributions.

The Rev. Dr GILLESPIE said the Society had been very frank in stating that it hoped to discontinue calling for voluntary contributions of this kind, but the time had not come yet when they could dispense with these subscriptions. He did hope that Perth and Forfar would follow the excellent example of Fife and Kinross, and that the subscriptions would be forthcoming along with a blessing. They must consider the claims which were made upon the Highland and Agricultural Society. Whenever a grant was wanted for Veterinary Colleges and other things an appeal was made to the Highland and Agricultural Society. They should remember that the funds of the Society were provided voluntarily by the members, and if they examined the country they would have difficulty in finding a society carried on on the same scale whose subscription was so moderate.

Mr MACDUFF of Bonhard hoped that some arrangement would be come to, as it would be against the interests of the city of Perth and of the Society if the Show was not held as originally arranged.

Mr ANDERSON, Kippendavie, said that all that was offered by the city of Perth was a free water-supply and a free site for the Show.

The motion was then agreed to unanimously.

#### *Agricultural Education.*

The Rev. Dr GILLESPIE submitted the report on the result of the examination held at Leeds in April for the National Diploma in Agriculture. Of the forty-eight candidates who came forward thirty-one were successful. One candidate obtained the Diploma with honours.

#### *Report by the Chemist.*

Mr HENDRICK, the Chemist of the Society, submitted his usual report on analyses made for members of the Society. The substance of the report is embraced in Mr Hendrick's paper in another part of this volume.

#### *Botanical Department.*

Professor M'ALPINE, botanist to the Society, reported as follows: During the past season (1909-10) I have examined the germination and purity of 260 samples of grass and clover seeds. Several samples of weeds and grasses were sent in for identification, also fungoid diseases on potatoes, turnips, barleys, &c.

The following table shows the maximum and minimum percentages of germination and purity:—

Name of seed.	Max. germination per cent.	Min. germination per cent.	Max. purity per cent.	Min. purity per cent.
Red clover . . . . .	99	90	100	95
Alsike clover . . . . .	99	93	99	95
White clover . . . . .	98	62	99	92
Trefoil . . . . .	99	91	100	99
Kidney vetch . . . . .	94	92	99	97
Italian ryegrass . . . . .	97	58	100	92
Perennial ryegrass . . . . .	92	75	100	90
Timothy . . . . .	98	90	100	99
Cocksfoot . . . . .	96	70	100	79
Meadow foxtail . . . . .	77	60	91	73
Meadow fescue . . . . .	96	88	100	98
Tall fescue . . . . .	89	63	98	69
Hard fescue . . . . .	92	75	99	98
Tall oat-grass . . . . .	83	83	96	96
Chicory . . . . .	50	48	100	100

On the motion of Mr GORDON of Newton a hearty vote of thanks was awarded to the Earl of Stair for presiding.

GENERAL MEETING IN THE DUMFRIES SHOWYARD,  
20TH JULY 1910.

A General Meeting of the members was held in the Pavilion in the Showyard on Wednesday, when there was a very large attendance. The Earl of Stair, president of the Society, occupied the chair.

Mr GORDON moved a hearty vote of thanks to the Provost, Magistrates, and Town Council of Dumfries for their assistance. In the other places visited by the Society no more cordial welcome was given by the "fathers" of these towns than at Dumfries. The Society was also greatly indebted for their free supply of water, and for everything else which had been done in aid of the Society.

Mr WM. DUTHIE, Collynie, seconded the motion, and the vote of thanks was duly accorded.

Provost LENNOX, in replying, said if they had made a pleasant stay for the Society that was enough thanks for them. He trusted the weather would clear up on the following days.

Mr CHARLES DOUGLAS of Auchlochan proposed that a vote of thanks be awarded the subscribers to the fund in aid of the Show. They had all to realise how much the interest in the Show was increased by the offering of special prizes, and the Society desired to thank the donors of these.

Mr JONATHAN MIDDLETON, Glastullich, seconded, and the vote of thanks was cordially passed.

Sir ARCHIBALD BUCHAN HEPBURN of Smeaton proposed a vote of thanks to the Rev. Dr Gillespie and the other members of the Local Committee for the assistance rendered by them in carrying out the Show. They were all aware that Dr Gillespie was in rather indifferent health, but there was one retrieving fact, and that was that he had been able to attend the Show. He (the speaker) was sure that on no previous occasion had the Local Committee worked harder and produced better results.

Mr ALEX. CROSS of Knockdon seconded, and the motion was adopted.

Mr JAMES A. ROLLO, Perth, moved that in 1912 the Society should hold their Show at Perth. The last time the Show was held there the Society had a clear profit, excluding the amount voluntarily subscribed, of over £2000. He reminded them that the Society was by no means a pauper Society. It had a capital of £113,000, and the interest per annum for the last ten years had been over £3000, the subscriptions from members amounted to nearly £2000, and the drawings at the Shows had been over £8000, making a total of fully £13,000 per annum.

Mr CAMPBELL, Shinness, seconded.

Mr W. S. FERGUSON, Pictstonhill, Perth, said there was no doubt that Perth was the best centre in Scotland. There they had the best ground, the best railway facilities, the best hotel facilities. If the Directors resolved to leave Perth as their centre they would take a great responsibility upon themselves, and they were bound to lose money over it. He spoke not only in the interests of the "old Society," but also in the interests of the County of Perth. Perth stood next to Edinburgh as regards record drawings, but if Perth had been favoured with Royalty as Edinburgh was, he felt sure the drawings at Perth would have been the highest ever taken. Besides, there were 600 members in Perthshire, while there were about 200 in Fife.

Mr A. H. ANDERSON, Kippendavie Estate Office, thought the Show should be held at Perth, as they had the best facilities there.

Lord NINIAN CRICHTON STUART, in supporting the claims of the "Kingdom" of Fife, said this was purely an agricultural question. He had to correct Mr Ferguson, and that was a duty which he would have liked to shirk, in respect of the number of members in Fife and Kinross. There were no fewer than 448 in these counties. He did not speak on the monetary side of the question at all. It was simply and purely a question of the progress of agriculture in Scotland. That was the chief purpose for the formation of the Society. The Society visited Perth, Inverness, Stirling, Edinburgh, Peebles, &c. Why did it not go to Fife? What good did it do agriculture by continually visiting the same places over and over again? The Society should visit new places, and give the people there the benefits as well as in the already named districts. He was not asking for a permanent transfer of the Show from Perth, he was asking for a trial to be made of the Show in Fife or Kinross. There were suitable sites in Kirkcaldy, Dunfermline, Cupar or Inverkeithing. There was a very large population within reach of these towns, and he felt that the Show were held at either of them the Society would not lose by it.

Colonel RYMOND, president of the Kinross and Arbroath Agricultural Society, supported Lord Ninian in his proposal. Kinross was a small town, but it was purely an



agricultural one, and they were ready to stand shoulder to shoulder with Fife in the matter.

Mr A. SMITH, Ladybank, also supported the claim for Fife. If Perth refused this voluntary subscription, then the claim of the Fife County Council was greatly increased. The claim was founded upon justice, and on the advancement of agriculture in Scotland.

Mr JAMES SIMPSON of Mawcarse also supported the motion. He thought there were excellent facilities at Kinross, both as regards railways and hotel accommodation.

Mr A. M. GORDON moved (1) that it was premature to decide as to the particular town in which the Society's Show of 1912 be held; (2) that the meeting reaffirm the resolution of the anniversary general meeting of 12th January 1910 to the effect that, "provided a suitable site is available, and satisfactory financial arrangements could be made, the show of 1912 be held in the Perth district"; and (3) that the Board of Directors be asked to confer with representatives from the different sections of the Perth Show district, and take into consideration the subscriptions that may be intimated in aid of the Show, and applications that may be received for the Show from centres in the Perth district, and to submit to the anniversary general meeting in Edinburgh in 1911 a report on the whole matter, with a recommendation as to the particular town in which the Show should be held.

Mr W. J. MAXWELL of Munches seconded, and thought it might be well for the Directors to go into the whole subject of rotation of shows.

After discussion, Mr Gordon's amendment was defeated on a show of hands.

On a division Lord Ninian Crichton's proposal, that the Show be held in Fife or Kinross, was carried by 167 to 115 for Mr Rollo's motion, that the Show be held in Perth.

On the motion of Mr JAMES A. ROLLO, it was resolved that a new Members' Pavilion be bought before next Show.

A vote of thanks to the chairman brought the meeting to a close.

#### ANNIVERSARY GENERAL MEETING, 11TH JANUARY 1911.

The Right Honourable Lord LOVAT, O.B., K.C.V.O., in the Chair.

##### *New Members.*

202 candidates were balloted for, and admitted as members.

##### *Office-bearers.*

Mr P. B. Macintyre, Mains of Findon, who is at present an Extraordinary Director, was elected an Ordinary Director in room of the late Mr Jonathan Middleton; and Provost Birnie, Inverness, was elected an Extraordinary Director in the place of Mr Macintyre.

##### *Finance.*

Mr A. M. GORDON submitted the accounts of the Society for the year to 30th November 1910. He appeared in behalf of Dr Gillespie, whose absence they all regretted, but of whom they had good accounts. The receipts of the year from all sources reached a total of £13,323. This sum exceeds the outlays by £1789, including a profit of £562 on the Dumfries Show and life subscriptions to the amount of £490. The local subscriptions in aid of the Dumfries Show amounted to £1232, showing that without these subscriptions there would have been a loss on the Show of £670. In the past year the expenditure on educational work amounted to about £250, on dairy work a similar amount, and on work in the chemical and botanical departments about £320.

##### *Argyll Naval Fund.*

Captain GILMOUR, M.P., submitted the report on the Argyll Naval Fund for 1909-10, which showed that the income for the year amounted to £228, 5s. 2d., while the expenditure was £200 in grants of £40 each to five naval cadets. A vacancy having occurred in the list of beneficiaries by the promotion of Mr John S. Binny Scott, the Directors, on the recommendation of the committee in charge of the fund, appointed Mr Henry Rowallan Gordon Cumming to the vacant place in the list.

*Advertising General Meetings of the Society.*

It was intimated that, with the view of making the holding of the general meetings of the Society better known to the members, the Board of Directors had adopted a resolution to the effect that the dates of general meetings and note of business to be dealt with, including note of all motions intimated to the Secretary, be advertised at least once in each of the two Scotch agricultural newspapers, and in 'The Scotsman,' 'Glasgow Herald,' and 'Dundee Advertiser.'

*Dumfries Show, 1910.*

Mr ALEXANDER CROSS reported on the Dumfries Show of 1910. The show of live stock was of an exceptionally high character, and the display of implements and machines was in every way creditable.

*Inverness Show of 1911.*

Sir JOHN MACPHERSON-GRANT, Bart., reported that the arrangements are well advanced for the Show of this year, to be held at Inverness on Tuesday, 18th July, and three following days. The town of Inverness has again been good enough to give the use of the Town Park at Tomnahurich as a site for the Show, and had likewise agreed to give a subscription of £50 and a supply of water free of charge. The County Councils of Inverness, Ross and Cromarty, Caithness, and Nairn had arranged to raise subscriptions to the local fund by means of voluntary assessments upon owners of lands and heritages. It is hoped that subscriptions will also be raised in the counties of Moray and Sutherland. The premium list for the Show will be exceptionally liberal, the prize money from the Society's own funds reaching a total of about £2420, an increase of more than £50 over the sum offered at the Inverness Show of 1901. There is every reason to expect that the Show will be as cordially supported by the people of the northern counties as was the Show of 1901, which left a profit of nearly £100.

*Show of 1912.*

Mr SCOTT PLUMMER reported that the Directors had resolved to hold the Show of 1912 at Cupar-Fife. They had had a most enthusiastic reception all round. The Fife Show had every prospect of being a great success. He moved accordingly.

Captain GILMOUR seconded, and the motion was unanimously agreed to.

*Show of 1913.*

Mr C. DOUGLAS moved that, provided a suitable site is available, and satisfactory financial and other arrangements can be made, the Society's Show of 1913 be held in the Glasgow district. The omens pointed to a cordial and almost a competitive reception from that locality.

Mr ALEX. CROSS seconded, and the motion was agreed to.

*District Shows and Competitions.*

Mr WILLIAM DUTHIE submitted report on the District Shows and Competitions, showing that in 1910 grants of money and medals had been given in 293 districts. The total expenditure under this head amounted to £609. For the current year the Directors proposed the following grants: (1) Under section 1, nineteen districts for grants of £12 each for cattle, horses, and sheep; and eleven districts in intermediate competition with a grant of three silver medals to each. (2) Under section 2, fourteen districts for grants of £15 each for stallions; special grants of £50 to the Agricultural Organisation Society for the development of the poultry industry in the Highlands; £40 to the Highland Home Industries; £20 to Kilmarnock Cheese Show; two silver medals to Ross-shire Crofter's Club; £3 each to Orkney, East Mainland, Sanday, Gigha, Walls and Hoy, and Uist; a gold medal and a silver medal to the British Dairymaids' Association; seventeen districts for two medals each; about 200 medals at ploughing competitions; two medals each to thirteen districts for cottages and gardens—making the total sum offered in 1911, £664.

Captain A. T. GORDON seconded, and the report was approved.

*Report by Chemist.*

Mr HENDRICK, Consulting Chemist to the Society, reported on the work of his department during 1910.

*Forestry.*

Sir ARCHD. BUCHAN HEPBURN moved that the annual grant of £50 to the lectureship on Forestry in the University of Edinburgh be continued for the current year.

Sir JOHN MACPHERSON-GRANT seconded, and it was agreed to.

*Education.*

Mr ALEX. CROSS reported on the results of the examination held last autumn for the National Diploma in Dairying. At the examination in England there were 32 candidates, of whom 22 obtained the diploma and 10 failed. At the examination at Kilmarnock there were 33 candidates, 23 getting the diploma, and 10 failing. The names of the successful candidates, as well as the names of the winners of the National Diploma in Agriculture at the examination held last May, will be published in next volume of 'Transactions.'

*Publications.*

Mr CHARLES DOUGLAS reported that the annual volume of 'Transactions' was being prepared, and would be published in spring.

A vote of thanks to Lord Lovat for presiding concluded the proceedings.

# APPENDIX A

## PREMIUMS

OFFERED BY

### THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND IN 1911

#### CONTENTS.

	PAGE
GENERAL NOTICE . . . . .	3
CONSTITUTION AND MANAGEMENT . . . . .	3
PRIVILEGES OF MEMBERS . . . . .	4
ESTABLISHMENT FOR 1910-1911 . . . . .	5
COMMITTEES FOR 1910-1911 . . . . .	7
MEETINGS FOR 1911 . . . . .	10
EXAMINATIONS FOR 1911 . . . . .	11
AGRICULTURAL EDUCATION . . . . .	12
VETERINARY DEPARTMENT . . . . .	20
FORESTRY DEPARTMENT . . . . .	20
DAIRY DEPARTMENT . . . . .	27
CHEMICAL DEPARTMENT . . . . .	31
BOTANICAL DEPARTMENT . . . . .	38
ENTOMOLOGICAL DEPARTMENT . . . . .	39
GENERAL REGULATIONS FOR COMPETITORS . . . . .	40

#### CLASS I.—REPORTS.

1. THE SCIENCE AND PRACTICE OF AGRICULTURE—FOR APPROVED REPORTS ON—
  1. Rural Economy abroad susceptible of being introduced into Scotland . . . . . 41
  2. Other suitable subjects . . . . . 41
2. ESTATE IMPROVEMENTS—FOR APPROVED REPORTS ON—
  1. General Improvement of Estates by Proprietors . . . . . 41
  - 2, 3, and 4. Reclamation of Waste Land by Proprietors or Tenants . . . . . 41
  - 5 and 6. Improvement of Natural Pasture by Proprietors or Tenants . . . . . 42
3. HIGHLAND INDUSTRIES AND FISHERIES—FOR APPROVED REPORTS ON—
  1. Mode of treating Native Wool . . . . . 42
4. MACHINERY—FOR APPROVED REPORTS . . . . . 42

## 5. FORESTRY DEPARTMENT—FOR APPROVED REPORTS ON—

1. Planting on Peat-bog . . . . .	42
-----------------------------------	----

## CLASS II.—DISTRICT COMPETITIONS.

1. STOCK . . . . .	43
2. SPECIAL GRANTS . . . . .	48
3. MEDALS in aid of Premiums given by Local Societies . . . . .	49
4. PLOUGHING COMPETITIONS . . . . .	52

## CLASS III.—COTTAGES AND GARDENS.

1. PREMIUMS for BEST KEPT COTTAGES and GARDENS . . . . .	53
2. MEDALS for COTTAGES and GARDENS or GARDEN PRODUCE, POULTRY, and BEE-KEEPING . . . . .	54

GENERAL SHOW AT INVERNESS IN 1911 . . . . .	57
---	----

GENERAL SHOW AT CUPAR-FIFE IN 1912 . . . . .	84
--	----

## GENERAL NOTICE.

THE HIGHLAND SOCIETY was instituted in the year 1784, and incorporated by Royal Charter in 1787. Its operation was at first limited to matters connected with the improvement of the Highlands of Scotland; but the supervision of certain departments, proper to that part of the country, having been subsequently committed to special Boards of Management, several of the earlier objects contemplated by the Society were abandoned, while the progress of agriculture led to the adoption of others of a more general character. The exertions of the Society were thus early extended to the whole of Scotland, and have since been continuously directed to the promotion of the science and practice of agriculture in all its branches.

In accordance with this more enlarged sphere of action, the original title of the Society was altered, under a Royal Charter, in 1834, to THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

Among the more important measures which have been effected by the Society are—

1. Agricultural Meetings and General Shows of Stock, Implements, &c., held in the principal towns of Scotland, at which exhibitors from all parts of the United Kingdom are allowed to compete.

2. A system of District Shows instituted for the purpose of improving the breeds of Stock most suitable for different parts of the country, and of aiding and directing the efforts of Local Agricultural Associations.

3. The encouragement of Agricultural Education, under powers conferred by a supplementary Royal Charter, granted in 1856, and authorising the Society to grant Diplomas to Students of Agriculture; and by giving grants in aid of education in Agriculture and allied sciences. In 1900 the Society discontinued its own Examination, and instituted jointly with the Royal Agricultural Society of England an Examination for a National Diploma in Agriculture.

4. The advancement of the Veterinary Art, by conferring Certificates on Students who have passed through a prescribed curriculum, and who are found, by public examination, qualified to practise. Terminated in 1881 in accordance with arrangements with the Royal College of Veterinary Surgeons.

5. The institution of a National Examination in Dairying, jointly with the Royal Agricultural Society of England.

6. The institution of an Examination in Forestry for First and Second Class Certificates.

7. The appointment of a chemist for the purpose of promoting the application of science to agriculture.

8. The establishment of a Botanical Department.

9. The appointment of Entomologist to advise members regarding insect pests.

10. The annual publication of the 'Transactions,' comprehending papers by selected writers, Prize Reports, and reports of experiments, also an abstract of the business at Board and General Meetings, and other communications.

11. The management of a fund left by John, 5th Duke of Argyll (the original President of the Society), to assist young natives of the Highlands who enter His Majesty's Navy.

## CONSTITUTION AND MANAGEMENT.

The general business of THE HIGHLAND AND AGRICULTURAL SOCIETY is conducted under the sanction and control of the Royal Charters, referred to above, which authorise the enactment of Bye-Laws.

The Office-Bearers consist of a President, Four Vice-Presidents, Thirty-two Ordinary and Twenty Extraordinary Directors, a Treasurer, an Honorary and an Acting Secretary, an Auditor, and other Officers.

The Supplementary Charter of 1856 provides for the appointment of a Council on Education, consisting of Sixteen Members—Nine nominated by the Charter, and Seven elected by the Society.

## PRIVILEGES OF MEMBERS

MEMBERS OF THE SOCIETY ARE ENTITLED—

1. *To receive a free copy of the 'Transactions' annually.*
2. *To apply for District Premiums that may be offered.*
3. *To report Ploughing Matches for Medals that may be offered.*
4. *To Free Admission to the Shows of the Society.*
5. *To exhibit Live Stock and Implements at reduced rates.<sup>1</sup>*
6. *To have Manures and Feeding-Stuffs analysed at reduced fees.*
7. *To have Seeds tested at reduced fees.*
8. *To have Insect Pests and Diseases affecting Farm Crops inquired into.*
9. *To attend and vote at General Meetings of the Society.*
10. *To vote for the Election of Directors, &c., &c.*

## ANALYSIS OF MANURES AND FEEDING-STUFFS

The Fees of the Society's Chemist for Analyses made for Members of the Society shall, until further notice, be as follow:—

The estimation of one ingredient in a manure or feeding-stuff	:	:	5s.
The estimation of two or more ingredients in a manure or feeding-stuff	:	:	10s.

*These charges apply only to analyses made for the sole and private use of Members of the Highland and Agricultural Society who are not engaged in the manufacture or sale of the substances analysed.*

The Society's Chemist, if requested, also supplies valuations of manures, according to the Society's scale of units.

## SEEDS, CROP DISEASES, INSECT PESTS, &c.

The rates of charges for the examination of plants and seeds, crop diseases, insect pests, &c., will be had on application to the Secretary.

## ELECTION OF MEMBERS

Candidates for admission to the Society must be proposed by a Member, and are elected at the half-yearly General Meetings in January and June. It is not necessary that the proposer should attend the Meeting.

## CONDITIONS OF MEMBERSHIP

*Higher Subscription.*—The ordinary annual subscription is £1, 8s. 6d., and the ordinary subscription for life-membership is £12, 12s.; or after ten annual payments have been made, £7, 7s.

*Lower Subscription.*—Proprietors farming the whole of their own lands, whose rental on the Valuation Roll does not exceed £500 per annum, and all Tenant-Farmers, Secretaries or Treasurers of Local Agricultural Associations, Factors resident on Estates, Land Stewards, Foresters, Agricultural Implement Makers, and Veterinary Surgeons, none of them being also owners of land to an extent exceeding £500 per annum, are admitted on a subscription of 10s. annually, which may be redeemed by one payment of £7, 7s., and after eight annual payments of 10s. have been made, a Life Subscription may be purchased for £5, 5s., and after twelve such payments, for £3, 8s.<sup>2</sup> Subscriptions are payable on election, and afterwards annually in January.

Members are requested to send to the Secretary the names and addresses of Candidates they have to propose (stating whether the Candidates should be on the £1, 8s. 6d. or 10s. list).

JAMES MACDONALD, *Secretary.*

3 GEORGE IV. BRIDGE, EDINBURGH.

<sup>1</sup> Firms are not admitted as Members; but if one partner of a firm becomes a Member, the firm is allowed to exhibit at Members' rates.

<sup>2</sup> Candidates claiming to be on the 10s. list must state under which of the above designations they are entitled to be placed on it.

# ESTABLISHMENT FOR 1910-1911

## President.

LORD LOVAT, C.B., K.C.V.O., A.D.C., Beaufort Castle, Beaulieu.

## Vice-Presidents.

Sir HECTOR MUNRO of Foulis, Bart., A.D.C., Dingwall.  
 Captain DONALD W. CAMERON of Lochiel, Achnacarry, Spean Bridge.  
 A. D. MACKINTOSH of Mackintosh, Moy Hall, Inverness.

## Ordinary Directors.

Year of  
Election.

- |      |   |
|------|---|
|      | CHARLES DOUGLAS of Auchlochan, Lesmahagow.<br>Captain JOHN GILMOUR, M.P., yr. of Montrave, Woodburne, Ceres, Fife.<br>JOHN MURRAY, Balruddery, Dundee.<br>Sir ARCHIBALD BUCHAN HEPBURN of Smeaton, Bart., Prestonkirk.<br>JOHN MARR, Upper Mill, Tarves.<br>JOHN M. AITKEN, Norwood, Lockerbie.<br>J. HUNTLY MACDONALD, Torbreck, Inverness.<br>C. H. SCOTT PLUMMER of Sunderland Hall, Selkirk.<br>JOHN M'UTCHEEN DOBBIE, Campend, Dalkeith.<br>WILLIAM TAYLOR, Park Mains, Kenfrew.<br>W. S. FERGUSON, Pictstonhill, Perth. |
| 1907 | DAVID WILSON, D.Sc., of Carbeth, Killearn.<br>THOMAS GORDON DUFF of Drummuir, Keith.<br>Colonel ROBERT F. DUDGEON of Cargen, Dumfries.<br>Sir JOHN MACPHERSON-GRANT of Ballindalloch, Bart.<br>H. M. LEADBETTER, Knowesouth, Jedburgh.  |
| 1908 | Captain THOMAS HOPE of Bridge Castle, Bathgate.<br>ALEXANDER CROSS of Knockdon, 19 Hope Street, Glasgow.<br>A. H. ANDERSON, Kippendavie Estate Office, Dunblane.<br>MARQUIS OF TULLIBARDINE, M.P., M.V.O., D.S.O., Blair Castle, Blair Atholl.  |
| 1909 | Dr R. SHIRRA GIBB, Boon, Lauder.<br>JOHN M'CAIG of Belmont, Stranraer.<br>WILLIAM DUTHIE, Tarves, Aberdeenshire.<br>P. B. MACINTYRE, Mains of Findon, Conon Bridge.<br>JAMES STENHOUSE, Turnhouse, Cramond Bridge.<br>JAMES WILSON, Westburn, Cambuslang.<br>J. ERNEST KERR, Harviestoun Castle, Dollar.  |
| 1910 | Major F. J. CARRUTHERS of Dormont, Lockerbie.<br>DAVID FERRIE, Parbroath, Cupar-Fife.<br>E. DOUGLAS PATON, Braehead, St Boswells.<br>Captain ALEX. T. GORDON, yr. of Newton, Insh, Aberdeenshire.<br>J. DOUGLAS FLETCHER of Rosehaugh, Avoch, B.S.O., Ross-shire.   |



### Extraordinary Directors.

- JOHN BIRNIE, Provost of Inverness.  
 JAMES A. GOSSIP, Inverness.  
 D. P. HENDERSON of Stemster, Halkirk, Caithness.  
 WILLIAM STIRLING of Fairburn, Muir of Ord.  
 1910 { J. P. GRANT of Rothiemurchus, Aviemore.  
 WILLIAM MACDONALD, Morayston, Inverness.  
 DONALD INNES of Sandside, Thurso.  
 JAMES F. HARDIE, Skibo Estates Office, Clashmore, Dornoch.  
 THOMAS WILKINSON CUTHBERT, Achindunie, Alness.  
 GEORGE A. FERGUSON, Surradale, Elgin.  
 1905 WILLIAM T. MALCOLM, Dunmore, Larbert.  
 1908 ROBERT PATERSON, Hill of Drip, Stirling.  
 1909 { W. H. RALSTON, Dunragit Estate Office, Dunragit.  
 C. M. CAMERON, Balnakyle, Munlochy, Ross-shire.  
 ATHOLE S. HAY of Marfield, Roxburgh.  
 DONALD M'LEAN, Dunrobin, Golspie.  
 1910 { JAMES I. DAVIDSON, Saughton Mains, Corstorphine.  
 JOHN M. MARTIN, Craufurd, Lasswade.  
 F. W. CHRISTIE, Castlefield, Cupar-Fife.  
 J. CAMPBELL MURRAY, 216 West George Street, Glasgow.

### Office-Bearers.

Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, *Treasurer*.  
 ALEXANDER M. GORDON of Newton, Inch, *Honorary Secretary*.  
 Rev. A. WALLACE WILLIAMSON, D.D., 44 Palmerston Place, Edinburgh,  
*Chaplain*.  
 JAMES MACDONALD, F.R.S.E., *Secretary*.  
 JOHN MACDIARMID, *Clerk*.  
 EDWARD M. COWIE, *Second Clerk*.  
 WILLIAM HOME COOK, C.A., 42 Castle Street, *Auditor*.  
 JAMES HENDRICK, B.Sc., F.I.C., Agricultural Department, Marischal  
 College, Aberdeen, *Chemist*.  
 Professor R. STANFIELD, A.R.S.M., M.Inst.C.E., F.R.S.E., 24 Mayfield  
 Gardens, Edinburgh, *Consulting Engineer*.  
 A. N. M'ALPINE, 6 Blythswood Square, Glasgow, *Consulting Botanist*.  
 R. S. MACDOUGALL, M.A., D.Sc., 9 Dryden Place, *Consulting Entomologist*.  
 TODS, MURRAY, & JAMIESON, W.S., 66 Queen Street, *Law Agents*.  
 WILLIAM BLACKWOOD & SONS, 45 George Street, *Printers and Publishers*.  
 KEITH & Co., 43 George Street, *Advertising Agents*.  
 G. WATERSTON & SONS, 35 George Street, *Stationers*.  
 THOMAS SMITH & SONS, 47 George Street, *Silversmiths*.  
 ALEXANDER KIRKWOOD & SON, 9 St James' Square, *Medallists*.  
 JOHN WATHERSTON & SONS, 29 Queensferry Street, *Inspectors of Works*.  
 D. MACANDREW & Co., 120 Loch Street, Aberdeen, *Showyard Contractors*.  
 WILLIAM SIMPSON, *Messenger*.

### Chairman of Board of Directors.

C. H. SCOTT PLUMMER of Sunderland Hall.

### Chairmen of Committees.

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 1. Argyll Naval Fund . . .          | Captain JOHN GILMOUR, M.P.          |
| 2. Finance, Chambers, and Law . . . | Very Rev. JOHN GILLESPIE, LL.D.     |
| 3. Publications . . .               | Very Rev. JOHN GILLESPIE, LL.D.     |
| 4. Shows . . .                      | ALEX. M. GORDON of Newton.          |
| 5. Science . . .                    | DAVID WILSON, D.Sc., of Carbeth.    |
| 6. General Purposes . . .           | DAVID WILSON, D.Sc., of Carbeth.    |
| 7. Education . . .                  | Very Rev. JOHN GILLESPIE, LL.D.     |
| 8. Forestry . . .                   | Sir ARCHIBALD BUCHAN HEPBURN, Bart. |

## COMMITTEES FOR 1910-1911

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### 1. ARGYLL NAVAL FUND.

Captain JOHN GILMOUR, M.P., yr. of Montrave, Woodburne, Ceres, *Convener*.  
 J. PATTEN MACDOUGALL, C.B., 39 Heriot Row, Edinburgh.  
 JOHN MACLACHLAN of Maclachlan, 48 Castle Street, Edinburgh.  
 Sir KENNETH MACKENZIE of Gairloch, Bart., 10 Moray Place, Edinburgh.  
 MARQUIS OF TULLIBARDINE, M.P., M.V.O., D.S.O., Blair Castle, Blair Atholl.  
 DAVID WILSON, D.Sc., of Carbeth, Killearn.  
 Sir ARCHIBALD BUCHAN HEPBURN of Smeaton, Bart., Prestonkirk.  
 C. H. SCOTT PLUMMER of Sunderland Hall, *ex officio*.

### 2. FINANCE, CHAMBERS, AND LAW.

Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, *Convener*.  
 ALEXANDER CROSS of Knockdon, 19 Hope Street, Glasgow.  
 JOHN M'HUTCHEN DOBBIE, Campend, Dalkeith.  
 W. S. FERGUSON, Pictstonhill, Perth.  
 JAS. I. DAVIDSON, Saughton Mains, Corstorphine.  
 DAVID WILSON, D.Sc., of Carbeth, Killearn.  
 Sir ARCHIBALD BUCHAN HEPBURN of Smeaton, Bart., Prestonkirk.  
 JAMES STENHOUSE, Turnhouse, Cramond Bridge.  
 A. M. GORDON of Newton, Inch, Aberdeenshire, Hon. Secretary, *ex officio*.  
 WILLIAM HOME COOK, C.A., Auditor, *ex officio*.  
 C. H. SCOTT PLUMMER of Sunderland Hall, *ex officio*.

### 3. PUBLICATIONS.

Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, *Convener*.  
 DAVID WILSON, D.Sc., of Carbeth, Killearn.  
 Dr R. SHIRRA GIBB, Boon, Lauder.  
 JOHN M'HUTCHEN DOBBIE, Campend, Dalkeith.  
 JOHN WILSON, Chapelhill, 6 Mansionhouse Road, Edinburgh.  
 CHARLES DOUGLAS of Auchlochan, Leamnahagow.  
 C. H. SCOTT PLUMMER of Sunderland Hall, *ex officio*.

### 4. SHOWS.

ALEX. M. GORDON of Newton, Inch, Aberdeenshire, *Convener*.  
 Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, *Vice-Convener*.  
 JOHN MARR, Upper Mill, Tarves.  
 W. S. FERGUSON, Pictstonhill, Perth.  
 ALEX. CROSS of Knockdon, 19 Hope Street, Glasgow.  
 J. D. FLETCHER of Rosehaugh, Avoch, R.S.O., Ross-shire.  
 C. M. CAMERON, Balnakyle, Munlochy.  
 WILLIAM DUTHIE, Tarves, Aberdeenshire.  
 Colonel ROBERT F. DUDGEON of Cargen, Dumfries.  
 JOHN M'HUTCHEN DOBBIE, Campend, Dalkeith.  
 JOHN M'CAIG of Belmont, Stranraer.

JOHN MURRAY, Balruddery, Dundee.  
 WILLIAM TAYLOR, Park Mains, Renfrew.  
 A. H. ANDERSON, Kippendavie, Dunblane.  
 JAMES STENHOUSE, Turnhouse, Cramond Bridge.  
 E. DOUGLAS PATON, Braehead, St Boswells.  
 J. ERNEST KERR, Harviestoun Castle, Dollar.  
 THOMAS GORDON DUFF of Drummuir, Keith.  
 Sir JOHN MACPHERSON-GRANT of Ballindalloch, Bart.  
 W. T. MALCOLM, Dunmore, Larbert.  
 The MARQUIS OF TULLIBARDINE, M.P., M.V.O., D.S.O., Blair Castle.  
 DAVID FERRIE, Parbroath, Cupar-Fife.  
 Major F. J. CARRUTHERS of Dormont, Lockerbie.  
 Captain THOMAS HOPE of Bridge Castle, Bathgate.  
 H. M. LEADBETTER, Knowesouth, Jedburgh.  
 CHARLES DOUGLAS of Auchlochan, Lesmahagow.  
 Captain JOHN GILMOUR, M.P., yr. of Montrave, Woodburne, Ceres.  
 J. HUNTLY MACDONALD, Torbreck, Inverness.  
 JAMES WILSON, Westburn, Cambuslang.  
 Captain ALEX. T. GORDON, Combscausway, Inch, Aberdeenshire.  
 P. B. MACINTYRE, Mains of Findon, Conon Bridge.  
 F. W. CHRISTIE, Dairsie Mains, Dairsie, R.S.O.  
 C. H. SCOTT PLUMMER of Sunderland Hall, *ex officio*.

## 5. SCIENCE.

DAVID WILSON, D.Sc., of Carbeth, Killearn, *Convener*.  
 Dr R. SHIRRA GIBB, Boon, Lauder, *Vice-Convener*.  
 W. S. FERGUSON, Pictstonhill, Perth.  
 ALEX. CROSS of Knockdon, 19 Hope Street, Glasgow.  
 Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, Ruthwell, R.S.O.  
 JOHN WILSON, Chapelhill, 6 Mansionhouse Road, Edinburgh.  
 JOHN M'HUTCHEN DOBBIE, Campend, Dalkeith.  
 JOHN M'CAIG of Belmont, Stranraer.  
 C. H. SCOTT PLUMMER of Sunderland Hall, Selkirk.  
 JAMES STENHOUSE, Turnhouse, Cramond Bridge.  
 THOMAS GORDON DUFF of Drummuir, Keith.  
 J. M. AITKEN, Norwood, Lockerbie.  
 Sir ARCHIBALD BUCHAN HEPBURN of Smeaton, Bart., Prestonkirk.  
 The MARQUIS OF TULLIBARDINE, M.P., M.V.O., D.S.O., Blair Castle.  
 DAVID FERRIE, Parbroath, Cupar-Fife.  
 CHARLES DOUGLAS of Auchlochan, Lesmahagow.  
 JAMES WILSON, Westburn, Cambuslang.  
 J. CAMPBELL MURRAY, 216 West George Street, Glasgow.  
 JAMES HENDRICK, Chemist, *ex officio*.  
 A. N. M'ALPINE, Botanist, *ex officio*.  
 R. S. MACDOUGALL, D.Sc., *ex officio*.

## 6. GENERAL PURPOSES.

DAVID WILSON, D.Sc., of Carbeth, *Convener*.  
 JOHN M'HUTCHEN DOBBIE, Campend, Dalkeith.  
 Sir ARCHIBALD BUCHAN HEPBURN of Smeaton, Bart., Prestonkirk.  
 JOHN WILSON, Chapelhill, 6 Mansionhouse Road, Edinburgh.  
 JAMES I. DAVIDSON, Saughton Mains, Corstorphine.  
 CHARLES DOUGLAS of Auchlochan, Lesmahagow.  
 Captain THOS. HOPE of Bridge Castle, Westfield.  
 JAMES STENHOUSE, Turnhouse, Cramond Bridge.  
 ALEX. CROSS of Knockdon, 19 Hope Street, Glasgow.  
 ALEX. M. GORDON of Newton, Inch, *ex officio*.  
 Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, *ex officio*.  
 C. H. SCOTT PLUMMER of Sunderland Hall, *ex officio*.

## 7. EDUCATION.

Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, *Convener*.  
 DAVID WILSON, D.Sc., of Carbeth, Killearn.  
 ALEXANDER CROSS of Knockdon, 19 Hope Street, Glasgow.  
 CHARLES DOUGLAS of Auchlochian, Lesmahagow.  
 Dr R. SHIRRA GIBB, Boon, Lauder.  
 The SECRETARY.  
 C. H. SCOTT PLUMMER of Sunderland Hall, *ex officio*.

## 8. FORESTRY.

Sir ARCHIBALD BUCHAN HEPBURN of Smeaton, Bart., Prestonkirk, *Convener*.  
 The MASTER OF POLWARTH, Humble House, Upper Keith.  
 A. M. GORDON of Newton, Inch, Aberdeenshire.  
 R. C. MUNRO FERGUSON of Raith, M.P., Kirkcaldy.  
 JOHN METHVEN, 15 Princes Street, Edinburgh.  
 Colonel F. BAILEY, 7 Drummond Place, Edinburgh.  
 DAVID KEIR, Ladywell, Dunkeld.  
 JOHN MICHIE, M.V.O., Balmoral, Ballater.  
 THOMAS GORDON DUFF of Drummur, Keith.  
 The MARQUIS OF TULLIBARDINE, M.P., M.V.O., D.S.O., Blair Castle.  
 DAVID WILSON, D.Sc., of Carbeth, Killearn.  
 Captain JOHN GILMOUR, M.P., yr. of Montrave, Woodburne, Ceres.  
 CHARLES DOUGLAS of Auchlochian, Lesmahagow.  
 EARL OF STAIR, Lochinch, Castle Kennedy Station.  
 Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse.  
 Captain STIRLING of Keir, Dunblane.  
 Right Hon. Sir HERBERT E. MAXWELL of Monreith, Bart., Whauphill.  
 A. H. ANDERSON, Kippendavie, Dunblane.  
 Sir JOHN MACPHERSON-GRANT of Ballindalloch, Bart.

## 9. OFFICE-BEARERS.

JOHN M'HUTCHEN DOBBIE, Campend, Dalkeith.  
 E. DOUGLAS PATON, Braehead, St Boswells.  
 WILLIAM DUTHIE, Tarves.  
 ALEX. CROSS of Knockdon, 19 Hope Street, Glasgow.  
 W. S. FERGUSON, Pictstonhill, Perth.  
 Sir JOHN MACPHERSON-GRANT of Ballindalloch, Bart.  
 A. H. ANDERSON, Kippendavie, Dunblane.  
 Major F. J. CARRUTHERS of Dormont, Lockerbie.  
 Captain JOHN GILMOUR, M.P., yr. of Montrave, Woodburne, Ceres.  
 MARQUIS OF TULLIBARDINE, M.P., M.V.O., D.S.O.  
 DAVID FERRIE, Farbroath, Cupar-Fife.  
 ALEX. M. GORDON of Newton, Inch, Aberdeenshire, *ex officio*.  
 Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, Ruthwell, *ex officio*.

The President, Vice-Presidents, the Treasurer, Honorary Secretary, and Chairman of Directors are members *ex officio* of all Committees.

## REPRESENTATIVES ON OTHER BODIES.

## National Agricultural Examination Board.

Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, Ruthwell, E.S.O.  
 ALEX. CROSS of Knockdon, 19 Hope Street, Glasgow.  
 CHARLES DOUGLAS of Auchlochian, Lesmahagow.  
 DAVID WILSON, D.Sc., of Carbeth, Killearn.  
 Dr R. SHIRRA GIBB, Boon, Lauder.  
 JAMES MACDONALD, *Secretary*.

**West of Scotland Agricultural College.**

Very Rev. JOHN GILLESPIE, LL.D., Mouswald Manse, Ruthwell, R.S.O.  
JOHN M. MARTIN, Crauford, Lasswade.

**Edinburgh and East of Scotland College of Agriculture.**

Dr R. SHIRRA GIBB, Boon, Lauder.  
JAMES MACDONALD, *Secretary*.

**Aberdeen and North of Scotland College of Agriculture.**

T. GORDON DUFF of Drummur, Keith.  
WILLIAM DUTHIE, Tarves.

**Royal (Dick) Veterinary College.**

JOHN M. MARTIN, Crauford, Lasswade.

**Glasgow Veterinary College.**

ALEX. CROSS of Knockdon, 18 Hope Street, Glasgow.

**MEETINGS.**

**General Meetings.**—By the Charter the Society must hold two General Meetings each year, and, under ordinary circumstances, they are held in the months of January and June, in the Society's Hall, 3 George IV. Bridge, for the election of Members and other business. Twenty a quorum.

By a resolution of the General Meeting on 15th January 1879, a General Meeting of Members is held in the Showyard on the occasion of the Annual Show. This year it will be held at Inverness, on Wednesday, 19th July, at an hour to be announced in the programme of the Show.

With reference to motions at General Meetings, Bye-Law No. 10 provides—"That at General Meetings of the Society no motion or proposal (except of mere form or courtesy) shall be submitted or entertained for immediate decision unless notice thereof has been given a week previously to the Board of Directors, without prejudice, however, to the competency of making such motion or proposal to the effect of its being remitted to the Directors for consideration, and thereafter being disposed of at a future General Meeting."

**General Show at Inverness.**—18th, 19th, 20th, and 21st July.—Entries close for Implements, 15th May; Stock, Poultry, and Dairy Produce, 9th June.

**Directors' Meetings.**—The Board of Directors meet (except when otherwise arranged) on the first Wednesday of each month from November till June inclusive, at half-past one o'clock P.M., and occasionally as business may require, on a requisition by three Directors to the Secretary, or on intimation by him. Seven a quorum.

**Committee Meetings.**—Meetings of the various Committees are held as required.

**Nomination of Directors.**—Meetings of Members, for the purpose of nominating Directors to represent the Show Districts on the Board for the year 1912-1913, will be held at the places and on the days after mentioned :—

1. Glasgow, North British Railway Hotel, Wed., 14th Feb. 1912, at 1.
2. Stirling, Golden Lion Hotel, . . . Thur., 15th Feb. 1912, at 1.30.
3. Perth, Salutation Hotel, . . . Fri., 16th Feb. 1912, at 2.
4. Edinburgh, Market Buildings, Gorgie, Wed., 21st Feb. 1912, at 2.
5. Kelso, Ante-room, Corn Exchange, . Fri., 23rd Feb. 1912, at 1.
6. Aberdeen, Imperial Hotel, . . . Fri., 1st Mar. 1912, at 2.30.
7. Inverness, Station Hotel, . . . Tues., 5th Mar. 1912, at 12.30
8. Dumfries, King's Arms Hotel, . . Wed., 13th Mar. 1912, at 1.

The nomination of Proprietor or other Members paying the higher subscription must be made in the 2nd, 6th, 7th, and 8th Districts; and the nomination of Tenant-Farmer or other Members paying the lower subscription, in the 1st, 3rd, 4th, and 5th Districts.

## EXAMINATIONS.

**Forestry.**—The Examination for the Society's Certificates in Forestry will be held at 3 George IV. Bridge, Edinburgh, on 11th, 12th, and 13th April 1911. Entries close on 6th March.

**Agriculture.**—The Examination for 1911 for the National Diploma in Agriculture will be held at the University, Leeds, on Monday, 24th April, and following days. Entries close on 31st March.

**Dairy.**—The Examination for 1911 for the National Diploma in Dairying will be held at the Dairy School, Kilmarnock, on Saturday, 23rd September, and following days. Entries close on 15th August.

## AGRICULTURAL EDUCATION

By a Supplementary Charter under the Great Seal, granted in 1856, the Society is empowered to grant Diplomas.

From 1858 to 1899 the Society held an annual Examination for Certificate and Diploma in Agriculture. In 1872 the Free Life Membership of the Society was granted to winners of the Diploma. In 1884 permission was given to holders of the Diploma to append the letters F.H.A.S. to their names.

In 1898 it was resolved by the Royal Agricultural Society of England and the Highland and Agricultural Society of Scotland to discontinue the independent Examinations in Agriculture held by the two Societies, and to institute in their stead a Joint-Examination for a NATIONAL DIPLOMA IN AGRICULTURE (N.D.A.) This Examination is now conducted under the management of the "National Agricultural Examination Board" appointed by the two Societies. In the year 1903, on the invitation of the two Societies, the Board of Agriculture and the Scotch Education Department agreed to appoint a representative from each to act on the Examination Board. Professor Middleton represents the former and Mr John Struthers, C.B., the latter body.

### REGULATIONS FOR EXAMINATION IN THE SCIENCE AND PRACTICE OF AGRICULTURE.

#### REGULATIONS.

1. The Societies may hold conjointly, under the management of the National Agricultural Examination Board appointed by them, an annual Examination in the Science and Practice of Agriculture, at a convenient centre.

2. Candidates who pass the Examination will receive the National Diploma in Agriculture—the Diploma to be distinguished shortly by the letters "N.D.A."

3. The Examination will be conducted by means of written papers and oral Examinations.

4. The Examination must be taken in Two Parts as follows :—

#### *First Part.*

1. Agricultural Botany.
2. Mensuration and Land Surveying  
(or *Agricultural Book-keeping*).
3. General Chemistry.
4. Geology.
5. Agricultural Zoology.

#### *Second Part.*

6. Practical Agriculture.
7. Agricultural Book-keeping  
(or *Mensuration and Land Surveying*).
8. Agricultural Chemistry.
9. Agricultural Engineering.
10. Veterinary Science.

Candidates have the option of taking Mensuration and Land Surveying in the First Part and Agricultural Book-keeping in the Second Part, or of taking Agricultural Book-keeping in the First Part and Mensuration and Land Surveying in the Second Part. The choice must be declared on the Entry Form at the time of Entry for the First Part.

5. The maximum number of marks obtainable and the minimum number of marks in each subject qualifying for the Diploma will be as follows:—

*First Part—*

SUBJECT.	Max. No. of Marks.	Pass Marks for Diploma.
1. Agricultural Botany . . . . .	200	120
2. Mensuration and Land Surveying . . . . .	200	120
3. General Chemistry . . . . .	200	120
4. Geology . . . . .	100	50
5. Agricultural Zoology . . . . .	100	50

*Second Part—*

6. Practical Agriculture . . . . .	500	300
7. Agricultural Book-keeping . . . . .	200	120
8. Agricultural Chemistry . . . . .	200	120
9. Agricultural Engineering . . . . .	200	100
10. Veterinary Science . . . . .	100	50

6. A Candidate who obtains not less than three-fourths (1500) of the aggregate maximum marks (2000) in the entire Examination will receive the Diploma with Honours, provided that he obtains not less than three-fourths (375) of the maximum marks (500) in the subject of Practical Agriculture.

7. A Candidate will not be entitled to take both Parts of the Examination at one time. A year must elapse between the passing of the First Part and sitting for the Second Part. A Candidate who fails to obtain Pass marks in more than one of the subjects in Part II. must take the entire Part again in 1912. A Candidate who fails in one subject only in Part II. may come up again in 1912 for that subject alone.

8. A non-returnable fee of £1 will be required from each Candidate for each Part of the Examination.

9. Holders of the First Class Certificate of the Royal Agricultural Society of England and of the Diploma of the Highland and Agricultural Society of Scotland will not be eligible for this Examination.

10. The Board reserve the right to postpone, abandon, or in any way, or at any time, modify an Examination, and also to decline at any stage to admit any particular Candidate to the Examination.

The Twelfth Examination for the National Diploma in Agriculture will take place at the Leeds University, on Monday, 24th April 1911, and following days. Forms of application for permission to sit at the Examination may be obtained in due course from "The Secretary, Royal Agricultural Society of England, 16 Bedford Square, London, W.C.," or from "The Secretary, Highland and Agricultural Society of Scotland, 3 George IV. Bridge, Edinburgh," and must be returned duly filled up not later than Wednesday, 31st March 1911, when the Entries will close.



**EXAMINATION IN 1912—IMPORTANT NOTICE.**

*After the Examination of 1911, certain of the subjects will be regarded as "Preliminary" and the separate examination by the Board in those subjects will be discontinued.*

*Copies of the new Regulations may be had after 1st May 1911.*

16 BEDFORD SQUARE, LONDON, W.C.,  
February 1911.

**SYLLABUS OF SUBJECTS OF EXAMINATION.****FIRST PART.****I.—AGRICULTURAL BOTANY.**

1. *Morphology*.—The structure of plants. The principles of classification. The Natural Orders (Phanerogams and Cryptogams), dealing specially with those of importance to the Agriculturist.

2. *Physiology*.—The life of the plant. Organs and their functions—nutritive and reproductive.

3. *Pathology*.—Diseases of plants, and their causes. Parasites—Phanerogams, Fungi, Bacteria. Prevention and cure.

4. *Cultivation*.—Conditions in plant life favourable to (a) the improvements of cultivated plants, and (b) the destruction of weeds. New varieties of plants. Pastures. Pruning.

N.B.—*Candidates will be expected to give evidence of practical acquaintance with the subject. They will be required to identify and briefly describe the commoner farm plants, such as cereals, roots, grasses, and clovers, as well as the more frequently occurring weeds, commercial examples of the chief farm seeds, sections illustrative of the main structural features of flowering plants, and slides of common fungi.*

**II.—MENSURATION AND LAND SURVEYING.**

1. Ordinary rules of superficial and solid mensuration. Volume of a prismoid. Applications to practical questions. Estimation of weights of bodies whose dimensions and specific gravity are known.

2. Land surveying by chain. Plotting from field-book, and determination of areas surveyed. The simpler "field problems."

3. The use and adjustment of instruments employed in Surveying and Levelling.

4. Levelling and plotting from field-book.

5. A sufficient knowledge of Trigonometrical Surveying for the determination of heights and distances by Theodolite; as essential to this, solution of plane triangles by the aid of Logarithmic Tables.

6. A knowledge of the various classes of maps published by the Ordnance Survey Department and their Scales.

N.B.—*Each Candidate should have with him at the Examination a pair of compasses, scales of equal parts, including a scale of one chain to an inch, and the scale fitting the Ordnance map,  $\frac{1}{2500}$ , or 25'344 inches to the mile, a small protractor, a set square, and a straight-edge about 18 inches in length.*

## III.—GENERAL CHEMISTRY.

## CHEMICAL PHYSICS.

Matter and Energy—Pure and mixed matter—Methods of separating Mixtures—Simple and Compound substances—Kinetic and Potential energy—Transformation and Conservation of Energy.

The solid, liquid, and gaseous states of matter and the phenomena accompanying change of state.

Heat—the measurement of Heat—thermometers—calorimeter—the effects of Heat and pressure on Gases.

Gaseous diffusion—vapour tension—the barometer.

Mass and Weight—the balance—Specific Gravity—Density—Hydrometry.

Metric system of weights and measures.

## INORGANIC CHEMISTRY.

The chief elements found in the commonest forms of matter.

The atomic theory—molecular condition of matter—atomic and molecular weights.

Chemical combination—symbolic notation—equations.

Hydrogen—its compounds with chlorine, oxygen, nitrogen, and carbon.

Oxygen—oxidation—combustion—respiration.

Water—natural waters—their impurities and purification.

Acids—bases—salts.

Carbon—its compounds with oxygen, sulphur, and nitrogen.

Nitrogen—nitric acid—nitrates—and nitrites.

Sulphur—sulphides—sulphuric and sulphurous acids—sulphates.

Chlorine—Bromine—Iodine.

Chlorides—Chlorates—chloride of lime, bleaching.

Phosphorus—phosphates—superphosphate.

Silica—silicates—arsenic.

Metals—ores—general metallurgic processes.

Alkalies—Chief Alkaline salts—Alkalimetry—Acidimetry.

Lime—the chief Lime compounds

Magnesium, Zinc, Iron, Lead, Copper, Mercury, Silver, and their technically important Salts.

## ORGANIC CHEMISTRY.

Distillation of Coal and Wood—Nature of chief products.

Hydrocarbons—Paraffins—Olefines and their chief oxidation products—Alcohols, Aldehydes, Acids.

Fermentations—Alcoholic, acetic, lactic, butyric.

Carbohydrates—sugars, starch, cellulose, dextrine, gums.

Fats—glycerol—saponification.

Benzene—Phenol.

Tartaric, Citric, and other common vegetable acids.

Amines and Amides—urea.

Proteids, Peptones, Gelatine, &c.

N.B.—In this section exact knowledge of general principles and typical compounds is expected, rather than diffuse information. Candidates are required to bring their Laboratory Notes to the Oral Examination in this subject.

## IV.—GEOLOGY.

1. Chief minerals entering into the composition of rocks. Origin and composition of aqueous and igneous rocks. General principles of the classification of rocks. Leading divisions of the stratified rocks, and their geographical distribution in the British Islands.

2. Stratification, cleavage, and faulting of rocks.

3. Influence of the geological structure of a country on the configuration of the land and the composition of the soil. Relation of strata to water-supply and drainage. Origin of springs.

4. The various mineral manures, their sources, characters, and mode of occurrence.

5. Different kinds of building-stones and road materials. Distribution of the various economical substances.

N.B.—*Candidates will be required to name and describe common rocks, minerals, and fossils, and to show some knowledge of geological maps and sections.*

## V.—AGRICULTURAL ZOOLOGY.

1. The part played by common animals in helping or hindering agricultural operations, as illustrated by moles and voles, insectivorous and other birds, snails and slugs, useful and injurious insects, arachnids and myriopods, earthworms, &c.

2. *General Structure of Insects*, especially the external characters.

3. *Life-history of Insects*.—Various forms of larvæ. Economic importance of different stages.

4. *Classification of Insects*.—The general characters of the following Natural Orders: Coleoptera, Lepidoptera, Hymenoptera, Diptera, Hemiptera, Orthoptera, Neuroptera.

5. *Acarina* injurious to Food Crops and Live Stock.

6. *Parasitic Worms*.—Flukes, Tapeworms, and Threadworms.

7. *Preventive and Remedial measures* in regard to insects, acarines, and worm Parasites—e.g., farm practice in relation to the discouragement of Insect Attack. Encouragement of insect-eating birds and mammals. Artificial remedies. Insecticides. Treatment for Parasites.

N.B.—*Practical acquaintance with common animals, especially insects and worm parasites, will be expected. Where the Candidate is not acquainted with the scientific name of an animal, the generally received English name will be accepted.*

## SECOND PART.

## VI.—PRACTICAL AGRICULTURE.

1. *Soils*.—Classification of soils—characters and composition—suitability for cultivation.

2. *Improvement of Soil*.—Drainage, Irrigation, and Warping. The application of lime—marl—clay—ashes, &c.

3. *Rotations*.—The principles of rotations—rotations suitable for different soils and climates—systems of farming.

4. *Manures*.—The properties of manures—general and special—amounts used per acre—period and mode of application—treatment and disposal of sewage.

5. *Food-stuffs*.—The properties of feeding substances—their suitability.

for different classes of farm stock—considerations affecting their use—rations for different classes of stock.

6. *Crops*.—Farm crops (cereals, agricultural grasses and clovers, forage plants and roots). How they grow—their cultivation, including cleaning, harvesting, and storage—diseases—insect injuries and remedies.

7. *Weeds and Parasitic Plants*.—Best methods of eradication.

8. *Pests of the Farm*.—Injuries to crops and live stock of the farm due to mammals, birds, and insects, with their prevention and remedies.

9. *Weather*.—Meteorology, or the effect of climate on farming conditions.

10. *Live Stock*.—The breeding, rearing, feeding, and general treatment of farm stock—the different breeds of horses, cattle, sheep, pigs, and poultry—their characteristics—the districts where they are generally met with.

11. *Milk*.—The production and treatment of milk—the manufacture of cheese, butter, &c.—the utilisation of bye-products.

12. *Machinery*.—The uses and prices of the machines and implements used in farming in different parts of Great Britain.

13. *Buildings*.—Buildings required on different classes of farms in various districts.

14. *Farming Capital*.—Calculations of the cost of stocking and working arable, stock, and dairy farms. Farm valuations. Rent, taxes, and cost of labour.

N.B.—*It is essential that a Candidate know his subject practically, and that he satisfy the Examiner of his familiarity with farm routine. Candidates will be expected to illustrate their answers when necessary by intelligible sketches or diagrams.*

## VII.—AGRICULTURAL BOOK-KEEPING.

1. Agricultural Book-keeping—Description of books to be kept, with examples.

2. Valuation of stock and effects.

3. Profit and Loss, and Balance-Sheet.

## VIII.—AGRICULTURAL CHEMISTRY.

1. *Soil*.—The origin, formation, and classification of soils. The constituents of soils. The supply of plant-food by the soil. The chemical and physical properties of soils of different kinds. The adaptation of soils to particular crops. The relations of air and water to soils. Nitrification and the biology of the soil. The chemical and physical effects of tillage operations and drainage. The improvement of soils. Causes of infertility. Mechanical and chemical analysis of soils.

2. *Plant-life*.—The constituents of plants. The relations of atmosphere, rainfall, heat, and light to vegetation. The sources of plant-food.

3. *Manures*.—The supply of plant-food by manure. The improvement of the soil by manuring. The classification of manures as regards their composition, nature, and use. The manures in general use upon the farm. Farmyard manure and other natural manures. Green-manuring. Liming, marling, claying. Artificial manures, their origin and manufacture. The changes which manures undergo in the soil. The influence of drainage. The application of manures. The analysis of manures. The adulteration of manures.

4. *Crops*.—The composition of the principal farm crops. Characteristics of particular kinds of crops. The influence of climate and season. The manuring of particular crops. The changes that take place in crops during the various stages of their growth. Rotation of crops.

5. *Foods*.—The constituents of foods, and their functions. The nutritive

value and digestibility of foods. The chemical composition and use of the principal feeding-stuffs employed on the farm, and the sources of their supply. The main facts regarding respiration and digestion. The relation of foods to the production of work, meat, milk, and manure. The adaptation of foods to special requirements. The residual manurial value of foods, and the circumstances affecting it. The estimation of unexhausted fertility. Analysis and adulteration of foods.

6. *Water*.—Rain-water. Hard and soft waters. Drinking waters. Irrigation and sewage.

7. *Dairying*.—The composition of milk, and the conditions which influence its quality and supply. Cream and cream-separation. Butter and butter-making. Cheese and cheese-making. The influence of ferments on milk and milk products. The preservation of milk. Milk-testing.

N.B.—*Candidates are required to bring their Laboratory Notes to the Oral Examination in this subject.*

## IX.—AGRICULTURAL ENGINEERING.

1. *Heat*.—Specific heat; latent heat; the unit of heat. Total heat of water; as ice, water, and steam. Conduction, convection, and radiation of heat. Mechanical equivalent of heat. Principle of combustion. Quantity of heat generated by combustion. Modes of transforming heat of combustion into power, as in the steam-engine, and in gas and oil engines.

2. *Air*.—Properties of air; elasticity, density. Barometer. Moisture. Movement. Winds. Windmills.

3. *Water*.—Composition, impurities, weight. Height of column to balance atmosphere. Flow of water. Friction of water in pipes and channels. Usual speed of flow. Power derived from falls of water. Water-wheels; turbines; water-pressure engines; pumps. Potable water. Sources of supply. Means of purification. Storage.

4. *Mechanics*.—Centre of gravity; stability of structures. The lever; toothed wheels; pulleys and ropes; wrapping connectors; winches; differential pulleys. Laws of motion. Strength of materials, tensile, compressive, torsional, and transverse; elastic limit; ultimate strength. Horse-power; animal and human power. Friction of surfaces and axles; lubrication.

5. *Steam-engine*.—Construction of an ordinary portable-engine boiler, and of a Cornish boiler, and its setting. Fittings of a boiler. Construction of the stationary and portable steam-engine. Single cylinder. Double cylinder. Compound. Steam and fuel consumed per horse-power.

6. *Gas and Petroleum Engines*.—Principle of action. Sources of loss. Fuel and water required per horse-power.

7. *Electrical Generators, Motors, and Conductors*.—Principles of action. Losses in electrical machinery. Efficiency. Detection of faults. Use of fuses and cut-outs. Horse-power of motors. Ohm's law.

8. *Construction of Agricultural Implements*.—The mode of action and the general principles involved in the construction of farm implements. The adjustments of implements for different descriptions of work. Lubrication. Working or wearing parts.

9. *Cultivating Implements worked by Steam Power*.

10. *Horse-cultivating Implements*.—Ploughs. Cultivators or Grubbers. Harrows. Rollers. Scrubbers, &c.

11. *Sowing Implements*.—Drills. Manure and water drills. Broadcast barrows. Broadcasters. Manure distributors. Potato planters, &c.

12. *Hoeing Implements*.—Horse-hoes. Scufflers.

13. *Securing of Crops*.—Reaping machines. Mowing machines. Hay-makers. Horse-rakes. Elevators. Silage appliances. Potato raisers, &c.

14. *Carriages*.—Carts. Waggons. Motor Waggons. Sleighs. Rick-lifters, &c.

15. *Preparing Crops for Market*.—Threshing machines. Winnowing machines. Corn screens. Hummellers. Hay and straw presses, &c.

16. *Preparing Foods*.—Mills. Chaff-cutters. Pulpers. Turnip-cutters. Cake-breakers. Cooking apparatus.

17. *Dairy Appliances*.—Cream separators. Churns. Butter-workers. Cheese tubs. Curd mills. Cheese presses. Setting-pans. Refrigerators, &c.

18. *Land Improvement*.—Drainage instruments. Limekilns. Arrangements of shafting, pulleys, clutches, &c., for farm machinery at home-steads. Building construction and material.

N.B.—*Marks will be given for neatness and accuracy of Drawing.*

## X.—VETERINARY SCIENCE.

1. Anatomy and Physiology, including the comparative anatomy of the bones of the animals of the farm, and the structure and functions of the different organs and tissues of the horse, ox, sheep, and pig.

2. The digestive processes and principles of nutrition in the above animals.

3. A general knowledge of the blood and its circulation, and the processes of respiration, secretion, and excretion.

4. The physiology of reproduction, and its bearings on healthy breeding.

5. The period of gestation in the mare, cow, ewe, and sow, and the special management of these animals prior to, at the time of, and after parturition.

6. The management of farm stock in health and disease.

The following won the Diploma in 1910 :—

### *Diploma with Honours.*

JAMES BERNARD GARNETT, Leeds University.

### *Diploma.*

FRED BANCROFT, Harris Institute, Preston.

ARTHUR OWEN BLACKHURST, Harris Institute, Preston.

REGINALD ARTHUR DALLEY, Harper-Adams Agricultural College, Newport, Salop.

NORMAN ROE FOSTER, College of Agriculture, Holmes Chapel, Cheshire.

ARTHUR GILLOTT, Leeds University.

ALEXANDER GREGG, Technical Schools, Truro.

MATTHEW HENDERSON, Leeds University.

JEREMIAH ALFONSO HICKEY, Leeds University.

JAMES RICHMOND HOLMES, Harris Institute, Preston.

THOMAS DUCKWORTH MARSH, Harris Institute, Preston.

STEPHEN PASCAL MERCER, Harper-Adams Agricultural College, Newport, Salop.

MANGHARAM GURUDINAMAL MUKHI, Cambridge University.

JOSEPH MURRAY, West of Scotland Agricultural College, Glasgow.

WILLIAM NEWTON, Harris Institute, Preston.

DANIEL GRANT O'BRIEN, West of Scotland Agricultural College, Glasgow.

FRANK CLIVE OSBORNE, Harper-Adams Agricultural College, Newport, Salop.

EDWARD PARKE, Leeds University.

GABRIEL KINTON PARKES, Harper-Adams Agricultural College, Newport, Salop.

WILLIAM THOMAS POWELL, University College of Wales, Aberystwyth.

PINDI DAS SABHERWAL, University College, Reading.

WILLIAM ALBERT SCOBY, Leeds University.

JOHN SIMPSON, Leeds University.

YU SHEE KWOK-SING, Midland Agricultural and Dairy College, Harris Institute, and West of Scotland Agricultural College.

SYDNEY SKELTON, South-Eastern Agricultural College, Wye, Kent.

ALLEN LACY TATE, South-Eastern Agricultural College, Wye, Kent.

MISS DOROTHY THOMPSON, Harris Institute, Preston.

VICTOR PEDLEY WALLEY, College of Agriculture, Holmes Chapel, Cheshire.

ROBERT DUNCAN WEBB, University College of North Wales, Bangor.

FRANK WILKINSON, Midland Agricultural and Dairy College, Kingston, Derby.

JAMES WILLIAMS, Aberdeen and North of Scotland College of Agriculture, Aberdeen.

#### EXAMINATION PAPERS OF PAST YEARS.

Copies of the Papers set at the Annual Examinations for the National Diploma in the Science and Practice of Agriculture held from 1900 to 1910 may, as far as available, be had on application. Price 6d. per set.

## VETERINARY DEPARTMENT

The Society established a Veterinary Department in 1823, but by an arrangement made with the Royal College of Veterinary Surgeons, the Society's examination ceased in 1881. Holders of the Society's Veterinary Certificate are entitled to become Members of the Royal College of Veterinary Surgeons on payment of certain fees, without being required to undergo any further examination. The number of Students who passed for the Society's Certificate is 1183.

The Society votes annually eleven silver medals for Class Competition to each of the two Veterinary Colleges in Scotland, the one in Edinburgh and the other in Glasgow.

## FORESTRY DEPARTMENT

THE SOCIETY GRANTS FIRST AND SECOND CLASS CERTIFICATES IN FORESTRY.

1. An Examination will be held each year about the month of April.
2. Next Examination will be held on 11th, 12th, and 13th April 1911. Entries close on 6th March.

3. Candidates must possess—1. A thorough acquaintance with the theory and practice of Forestry. 2. A general knowledge of the following branches of study, so far as these apply to Forestry: (a) The Elements of Botany and Forest Zoology; (b) The Elements of Physics, Chemistry, and Meteorology; (c) Forest Engineering, including Land and Timber Measuring and Surveying; Mechanics and Construction, as applied to fencing, draining, bridging, road-making, and saw-mills; and Implements of Forestry; (d) Book-keeping and Accounts.

4. The examinations are open to candidates of any age, may be both written and oral, and will include such practical tests as may from time to time be decided to apply.

5. The maximum number of marks for each subject is 100; Pass marks for First-Class Certificate—Forestry, 75; all other subjects, 60. Pass marks for Second-Class Certificate—Forestry, 60; all other subjects, 50.

6. A Candidate who obtains Pass marks in certain subjects, but fails in others, may come up for these other subjects alone, it being understood that without the special permission of the Society no Candidate will be eligible to enter for more than two subsequent examinations.

7. A Candidate who has obtained the Second-Class Certificate may enter again for the First-Class Certificate.

The list of students who obtained certificates prior to 1899 appears in the 'Transactions,' Fifth Series, vol. xi. (1899).

The following have since obtained First-Class Certificates:—

ERIC ARTHUR NOBBS, Department of Agriculture, Cape Town, .	1899
GEORGE POTTS, Grey College, Bloemfontein, Orange River Colony, .	1899
DUNCAN S. RABAGLIATI, 1 St Paul's Road, Bradford, .	1901
FRANK SCOTT, Dumfries House Mains, Cumnock, .	1903
WILLIAM T. STOCKLEY, Rose Villa, Garswood, near Wigan, .	1906
A. FRANK WILSON, C.D.A. (Edin.), Reedieleys, Auchtermuchty, .	1907
GEORGE FISHER, Farm Brook, Pilling, Garstang, Lancs., .	1909
JOHN PATTEN, jun., Hulne Park, Alnwick, .	1909
ALEXANDER MITCHELL, Dalmeny Park, Edinburgh, .	1909

The following have since obtained Second-Class Certificates:—

WILLIAM BRUCE, B.Sc., East of Scotland College of Agriculture, Edinburgh, .	1901
RAJAPPIER SWAMINATHAN, 56 Jesus Lane, Cambridge, .	1901
THOMAS USHER, Courthill, Hawick, .	1901
ALLAN CARRUTH, Lawmarnock, Kilbarchan, .	1905
ALEX. M. LUMSDEN, Newburn Schoolhouse, Upper Largo, .	1905
ROBERT M. WILSON, Laws Cottage, Duns, .	1905
THOMAS CAMPRELL, Greystoke, Penrith, .	1906
DONALD FERGUSON, Quarry Lane, Lennoxton, .	1906
CHARLES PENRHYN ACKERS, Huntly Manor, Gloucester, .	1908
ROBERT HOWIE, Beechwood, Arbroath, .	1908
JOHN TROTTER, B.Sc., 5 Argyle Park Terrace, Edinburgh, .	1908
JAMES A. S. WATSON, Downieken, Dundee, .	1908
NORMAN H. PEARSON, 52 Percy Park, Tynemouth, .	1909

## SYLLABUS OF EXAMINATION

### I.—SCIENCE OF FORESTRY AND PRACTICAL MANAGEMENT OF WOODS.

I. *Principles of Scientific Forestry*.—1. Effects of heat, light, moisture, and air-currents on forest vegetation. 2. Effects of depth, porosity, moisture, and chemical composition of the soil on forest vegetation. 3. Effects of forest vegetation on the soil and air. 4. Rate and extent of development, longevity, and reproductive power of trees. 5. Pure and mixed woods. 6. Systems of silviculture.



II. *Forest Organisation*.—7. General ideas regarding a regulated system of forest management. 8. Knowledge of working plans of forests.

III. *Practical Management of Woods*.—9. Draining and irrigation. 10. Choice of species for various situations. 11. Seed and sowing, including nurseries. 12. Planting. 13. Natural regeneration by seed, shoots, and suckers. 14. Formation of mixed woods. 15. Tending of young woods. 16. Pruning. 17. Thinning. 18. Sylvicultural characteristics of the principal trees.

IV. *Injuries by Storms and Fires*.—19. Storms. 20. Fires.

V. *Timber*.—21. Its technical properties. 22. Its defects. 23. Recognition of different kinds of timber. 24. Processes for increasing its durability.

VI. *Utilisation of Produce*.—25. Uses of wood and other produce. 26. Felling. 27. Conversion. 28. Seasoning. 29. Transport. 30. Sales. 31. Harvesting of bark.

## II.—FOREST BOTANY AND FOREST ZOOLOGY.

### (a) FOREST BOTANY.

The fundamental facts of morphology, physiology, and classification of plants. The structure and function of the plant-cell and the plant-tissues. Their primary distribution. The secondary changes they exhibit in consequence of perennation.

The structure and function of the root and shoot in flowering-plants. Buds, their forms and uses. The flower. The fruit. The seed.

The structure and function of vegetative and reproductive organs of fungi.

Relationship of plants to air, soil, and water. Effect of light, heat, and mechanical agencies upon plants. Nutrition. The nature and elements of the food of plants. Sources of plant-food. The absorption, elaboration, transference, and storage of food. Respiration and transpiration. Parasites and saprophytes. Symbiosis.

Growth of plants in length and thickness. Correlation of growth, pruning. Germination of seeds. Formation of wood and bark. Healing of wounds.

Diseases of plants due to faulty nutrition and unfavourable circumstances of growth. Diseases due to attacks of fungi.

Natural reproduction and propagation by seeds and by buds. Fertilisation of flowers. Hybridisation. Artificial propagation by budding, grafting, layering, and cutting.

The characters of the large groups and classes of the vegetable kingdom. The characters of the families of plants which include the chief timber trees. The botanical characteristics of the principal British forest-trees (including the structural features of their wood). The weeds of the forest and their significance.

### (b) FOREST ZOOLOGY.

The group Insecta: its position in the animal kingdom. Structure, mode of reproduction, and metamorphosis of insects. The outlines of classification of the group. Conditions favourable to the numerical increase of insects. Natural checks to increase (e.g., birds, mammals, parasitic insects). The identification and life-history of the more important insects injurious to forest-trees and fruit-trees. The damage caused by these insect pests and their mode of attack. The damage caused by animals. Preventive and remedial measures.

### III.—PHYSICS, CHEMISTRY, AND METEOROLOGY.

#### *Physics.*

Mass, weight, specific gravity, solid, liquid, and gaseous states of matter. Capillarity, osmose, vapour tension, suction pump, force pump, syphon, barometer, atmospheric pressure. Boyle's law. Levers and pulleys. Heat, measurement of heat, specific heat; transference of heat by conduction, convection, and radiation. Boiling and freezing. Latent heat. The thermometer. The conservation and transformation of energy. Light—reflection, refraction, polarisation; the spectrum. The rudiments of electricity and magnetism.

#### *Chemistry.*

Elements. Oxygen, hydrogen, nitrogen;—their preparation, properties, and chief compounds. Acids, bases, salts. Combustion, oxidation, reduction. Sulphur, carbon, phosphorus; and their compounds, with oxygen and hydrogen. Metals—potassium, sodium, calcium, magnesium, aluminium, iron, copper, lead, mercury, and their chief compounds. Carbohydrates, marsh gas, olefiant gas, alcohol, acetic acid, oxalic acid. Distillation of wood and coal.

#### *Meteorology.*

The atmosphere, its composition and physical properties. Measurement of pressure and temperature. The barometer. Rain, hail, snow, fog, cloud, dew, the dew-point, hoar frost. The weathering of rocks and soils. Gases injurious to vegetation.

### IV.—FOREST ENGINEERING, INCLUDING LAND AND TIMBER MEASURING AND SURVEYING; MECHANICS AND CONSTRUCTION AS APPLIED TO FENCING, BRIDGING, ROAD-MAKING, AND SAWMILLS.

1. The use of the level and measuring-chain. Measuring and mapping surface areas. 2. The measurement of solid bodies—as timber, stacked bark, fagots, &c., earthwork. 3. The different modes of fencing and enclosing plantations; their relative advantages, durability, cost of construction, and repairs. 4. The setting out and formation of roads for temporary or permanent use. 5. The construction of bridges over streams and gullies; of gates or other entrances. 6. The construction and working of estate saw-mills.

### V.—ARITHMETIC—BOOK-KEEPING.

1. Arithmetic—including Practice, Proportion, and Decimal Fractions. 2. Book-keeping—including the description of books to be kept, and the solution of practical questions in Book-keeping and the preparation of Accounts.

*No Examination was held in 1910.*

## EXAMINATION PAPERS, 1909

### PRACTICAL FORESTRY.

1. State briefly (a) the methods of preparing the ground for a young Thorn-hedge, and (b) the methods you would adopt for the improvement of comparatively old overgrown hedges.

2. It is intended to plant shelter belts at high elevations. State what species of trees you would select, how you would arrange the various species so as to give the best possible shelter and prolong the benefits of the same.

3. A proprietor has a plantation of 100 acres in extent and about 50 years of age, composed chiefly of Oak and Larch, but the crop is rather irregular. The ground is in the form of a square. A valley runs through the centre, which contains the greater portion of the Larch. On either side, and on fairly level ground, there is a crop of Oak. It is intended to prolong the life of the Larch till it is 80 to 90 years of age, and the Oak to be cut at 100 to 110 years of age. State—

(a) What treatment you would recommend for the Oak.

(b) What you would recommend to prolong the crop of Larch.

(c) What species of trees (including the newer Conifers) you would plant (1) to take the place of the Larch; (2) what trees you would plant in the more open spaces in the Oak portion in order that a profitable return may result when the question of the final cutting comes to be considered.

4. A stretch of rough hill pasture 3500 acres in extent is to be converted into a forest area to produce pit-wood. The area is situated along one side of a valley, is four miles long, almost regular in width, and is divided into three blocks, the exposure being S.E. and prevailing winds S.W. Planting operations (through force of circumstances) must be confined to the middle block for four years. Give an account of the plan you would adopt, taking into consideration the treatment of the separate blocks (a) as to security from wind-blows during life and on regeneration, (b) as to prevention of weevil attack on regeneration.

5. Explain briefly how you would treat a pure Scots Pine wood at each of the following stages:—

(a) From 6 to 20 years of age.

(b) From 20 to 40 years of age.

(c) From 40 to 60 years of age.

(d) From 60 years and upwards.

What is to be gained by keeping a proper degree of density (1) as regards soil, (2) as to development of trees, (3) as to quality of timber?

6. Supposing you are entrusted with the formation of a plantation of Oak and Beech, one part of the area (a) being more suitable for the development of the former, the other part (b) more suited for that of the latter, how would you mix the species in (a) and in (b)?

Give an outline of the treatment of each for the first 20 years.

*(Three hours allowed.)*

## FOREST BOTANY AND FOREST ZOOLOGY.

### (A) FOREST BOTANY.

*(Four questions only to be attempted.)*

1. Write an account of any fungus which causes a disease of the wood in a living tree.

2. What is the structure and what is the use of a medullary ray?

3. How does a deciduous tree transpire—

(a) In summer?

(b) In winter?

Describe the minute structure of the parts concerned in transpiration.

4. By what characters do you distinguish *Castanea*, *Quercus*, *Alnus*, *Carpinus*, *Ulmus*, *Tilia*?

5. What differences would you expect to find on the floor of a wood in open canopy and in close canopy? How do you explain the differences? Name some of the more common herbs and under-shrubs that you might meet with in a wood in Britain.

(B) FOREST ZOOLOGY.

(Two questions only to be attempted.)

1. Make a drawing of the mother and larval galleries of the pine beetle (*Hylesinus piniperda*) and the ash bark beetle (*H. fraxini*), and give the life-history of one of these beetles.

2. Give an account of the cockchafer (*Melolontha vulgaris*) as a forest insect, detailing protective and remedial measures.

3. What general principles would you follow in combating cambial and bark beetles? or name and give the formula for two sprays poisonous to caterpillars.

(Two hours allowed.)

PHYSICS, CHEMISTRY, AND METEOROLOGY.

1. Describe and explain the use of wet and dry bulb thermometers. What is meant by the dew-point? Under what conditions is dew deposited?

2. Give an account of the physical nature of light. What is meant by (a) the reflection, (b) the refraction of light?

3. State what you know of the composition of the atmosphere. Describe exactly how you would prepare nitrogen from the atmosphere.

4. What is phosphoric acid? Give the formulæ of any two salts of lime and phosphoric acid. What percentage of lime is contained in each of the salts you mention?

5. What is meant by the destructive distillation of wood? What are the chief products obtained when wood is subjected to destructive distillation?

O=16, P=31, Ca=40.

(An hour and a half allowed.)

LAND MEASURING, &c.

1. Calculate the area in figure in acres, roods, and poles.

2. Draw on the figure triangles measured with the chain at A B and C outside with chain lines, so as to measure and delineate the figure from outside.

3. Calculate the cubic contents of earth cutting for roadway in cubic yards measuring 300 ft. long, 18 ft. wide at the base, 2 ft. deep at one end, 3 ft. deep at the other end, and 5 ft. deep in the centre, with side slopes of  $1\frac{1}{2}$  horizontal to 1 perpendicular.

4. Describe the construction of stob and wire fencing, also of dry stone dyke, and state their relative advantages and suitability.

5. Sketch the best form of construction of an estate field-gate to pass a reaping-machine, and state breadth required.

6. Sketch timber bridge over burn 20 ft. from bank to bank to carry estate road.

7. What is the minimum fall for an efficient field main drain?

(Two hours allowed.)

## ARITHMETIC AND BOOK-KEEPING.

1. Find the value in £ s. d. of .627 of £34, 9s. 4d.
2. 9360 larch trees are purchased at 10s. 7½d. each, and £35, 10s. 7d. is paid for carriage. The trees are then resold for £6158, 10s. 7d. What is the profit per tree?
3. A garrison of 1800 men has provisions for 12 weeks. How long will the provisions last if 600 more men are introduced, but the daily allowance per man diminished by a third?
4. If 6 men and 9 boys, working 12 hours a-day, make a drain 225 yards long in 9 days, in how many days can 10 men and 12 boys, working 10½ hours a-day, make a drain 175 yards long, the work of a boy being two-thirds that of a man?
5. Robert Forrest is forester on the Hillside Estate, which comprises the woods of Blackmount, Craigdhu, and Corroun. All the labourers under him, 6 in number, are employed in each of the woods as occasion demands. Give a specimen of the Wages Book you would recommend R. Forrest to keep, and which could be written up weekly so as to show the total monthly expenditure on each wood, and the total weekly payment to each labourer.
6. The following is a list of the transactions recorded in the notebook of Alexander Johnston, forester on the estate of Woodstock, for the month of July 1908. Prepare therefrom a statement of income and expenditure, entering the different items under their proper branches. The account should be balanced by the inclusion of the bank and cash balances at 31st July. At 30th June 1908 there was a balance in bank of £150, 3s. 7d., and there was a balance due to the forester of £5.

1908.

July 1.	Received for cut timber sold to Wm. Firr at public auction . . . . .	£300 0 0
" "	Paid into bank . . . . .	255 0 0
" 4.	Paid cash for saw purchased . . . . .	15 0 0
" 7.	Paid by cheque John Roger & Co.'s account for Scotch pines for planting . . . . .	180 0 0
" 11.	Received from James Brown for 50 tons of bark from old oak timber, at £5 per ton, and paid into bank . . . . .	250 0 0
" 15.	Paid by cheque Alexander Johnston, month's wages . . . . .	25 0 0
" 19.	Paid by cheque James Watson's account for young trees supplied . . . . .	120 0 0
" "	Remitted to proprietor by cheque . . . . .	300 0 0
" 23.	Paid by cheque for new horse . . . . .	30 0 0
" "	Paid cash to Charles King, commission on purchase of same at 5 per cent . . . . .	1 10 0
" 27.	Received cash for 400 larch trees sold to James Young, at 10s. per tree, by private contract . . . . .	200 0 0
" "	Paid cash for carriage of same . . . . .	15 0 0
" "	Paid into bank . . . . .	185 0 0
" "	Paid cash to John Grant, blacksmith . . . . .	6 8 0
" 29.	Received cash for firewood sold to tenants . . . . .	18 7 0
" "	Paid cash for sharpening tools . . . . .	5 12 0
" 31.	Drawn from bank to pay wages of workmen for month, per pay-sheet . . . . .	105 0 0

*(One hour and a half allowed.)*

## DAIRY DEPARTMENT

EXAMINATION IN THE SCIENCE AND  
PRACTICE OF DAIRYING

This Examination, instituted in 1897, is conducted by the National Agricultural Examination Board, appointed jointly by the Royal Agricultural Society of England and the Highland and Agricultural Society of Scotland.

## REGULATIONS.

1. The Societies may hold annually in England and in Scotland, under the management of the National Agricultural Examination Board appointed by them, one or more Examinations for the National Diploma in the Science and Practice of Dairying; the Diploma to be distinguished shortly by the letters "N.D.D."

2. The Examinations will be held on dates and at places from time to time appointed and duly announced.

3. A non-returnable fee of £1 will be required from each candidate.

4. Forms of Entry for the Examination in England may be obtained from "The Secretary, Royal Agricultural Society of England, 16 Bedford Square, London, W.C.," and must be returned to him duly filled up, with the entry-fee of £1, on or before 15th August.

5. Forms of Entry for the Examination in Scotland may be obtained from "The Secretary, Highland and Agricultural Society of Scotland, 3 George IV. Bridge, Edinburgh," and must be returned to him duly filled up, with the entry-fee of £1, on or before 15th August.

6. A candidate may enter for the Examination either in England or Scotland, but not in both; and a candidate who has once taken part in an Examination in England cannot enter for an Examination in Scotland, or *vice versa*. No candidate may sit for the Examination more than twice.

7. A candidate will be required to satisfy the Examiners, by means of written papers, practical work, and *visd voce*, that he or she has—

(1) A general knowledge of the management of a Dairy Farm, including the rearing and feeding of Dairy Stock, the candidate being required to satisfy the examiners that he or she has had a thorough training and practical experience in all the details of Dairy work as pursued on a farm.

(2) A thorough acquaintance, both practical and scientific, with everything connected with the management of a Dairy, and the manufacture of Butter and Cheese.

(3) Practical skill in Dairying, to be tested by the making of Butter and Cheese.

(4) Capacity for imparting instruction to others.

8. The Board reserve the right to postpone, to abandon, or in any way, or at any time, to modify an Examination, and also to decline at any stage to admit any particular candidate to the Examination.

16 BEDFORD SQUARE, LONDON, W.C.,

February 1911.

## DATES OF EXAMINATIONS IN 1911.

**ENGLAND**—SATURDAY, September 16th, and following days, at the University College and British Dairy Institute, Reading: last date for receiving applications, TUESDAY, August 15th.

**SCOTLAND**—SATURDAY, September 23rd, and following days, at the Dairy School for Scotland, Kilmarnock: last date for receiving applications, TUESDAY, August 15th.

## SYLLABUS OF SUBJECTS OF EXAMINATION

## I.—GENERAL MANAGEMENT OF A DAIRY FARM.

1. *General Management of Pastures and Crops on a Dairy Farm.*
2. *Buildings.*—Situation, Surroundings, Construction, Ventilation, and Drainage of Farm Buildings. Suitability of building materials. Water supply. Construction and arrangements of Dairies: (a) for General Purposes; (b) for Special Purposes.
3. *Foods and Feeding.*—Summer and Winter Feeding of Dairy Cattle. Root crops. Green fodder. Ensilage. Different kinds of food and their composition. Their effect upon Milk, Butter, and Cheese. Special Foods used in Dairy Feeding. Preparation of food for Dairy Stock. Rearing and feeding of young Stock. Feeding and management of Pigs and Poultry.
4. *Dairy Cattle in Health and Disease.*—Characteristics of different Breeds, and choice of Dairy Cattle. General functions of the organs of the animal body. Breeding. Parturition. Organs which secrete milk. Process of milk secretion. Changes which food undergoes during digestion. Diseases of Dairy Cattle and their remedies.

## II.—MANAGEMENT OF DAIRY.

1. *Milk and Cream.*—Process of Milking. Dairy Utensils and Appliances, hand and power. Cooling of Milk. Separation and ripening of Cream. Different systems of Cream-raising. Utilisation of Skim-milk. Keeping of Milk. Importance of Cleanliness. Diseases spread by Milk. Conveyance and sale of Milk. Milk records. Keeping of Dairy and Farm Accounts. Creameries. Butter and Cheese Factories. Different systems of Dairying and their comparative returns.
2. *Butter.*—Churns and other Butter-making appliances, hand and power. Souring of Cream. Churning. Washing and working of Butter. Butter-milk. Packing and transmission of Butter. Salting and keeping of Butter. Colouring. Characteristics of good Butter.
3. *Cheese.*—Principles of its manufacture. Making of different kinds of Cheese (from cream, whole-milk, and skim-milk). Acidity of Milk. Use of Rennet and its substitutes. Whey. Appliances for Cheese-making. Ripening and storage of Cheese. Packing and sale of Cheese. Making of Cream and other soft Cheeses.

## III.—CHEMISTRY AND BACTERIOLOGY.

[*N.B.*—In this Section there will be expected of the candidate a sound understanding of the scientific principles underlying the practice of Dairying, a knowledge of the composition, nature, properties, and changes undergone by the different substances met with in Dairying, and a general acquaintance with the principles of laboratory methods so far as Dairying is concerned.]

1. *General Principles of Chemistry.*—The nature of elements and compound bodies. The different forms of matter—solid, liquid, gaseous. Specific gravity, and instruments for determining it. Temperature, and methods of measuring it. Thermometric scales. The influence of temperature in Dairy operations. Physical and chemical changes involved in the following: solution, precipitation, filtration, distillation, oxidation, and reduction. Acids, Bases, Salts—their distinctive properties. Acidity and Alkalinity—their influence and quantitative estimation.

The Atmosphere—its constituents and impurities; its influence on Dairy operations. Atmospheric pressure.

Water—constituents of pure and natural waters. The impurities of water, and whence derived. The importance of a pure water-supply in Dairying.

General knowledge of the elementary chemistry of the following substances and their compounds so far as met with in Dairying: Potash, Soda, Ammonia, Lime, Phosphoric Acid, Alcohol, Acetic Acid, Carbonic Acid, Butyric Acid, Lactic Acid, Albumen, Casein, Fats, Milk-sugar, Glycerine, Pepsin.

Saponification of Fats.

2. *Milk and its Products.*—The nature, composition, properties, and chemical constituents of milk. Microscopical appearances presented by milk. The circumstances that affect the quality and quantity of milk produced by the cow. The influence of feeding. The changes which occur in the keeping of milk, and how produced. The natural and artificial souring of milk. Rennet, its nature and use. Physical and chemical changes involved in the making and keeping of Butter, and in the manufacture and ripening of Cheese. Separated Milk, Condensed Milk, Fermented Milk. The use of Preservatives. Methods of Milk-testing—Mechanical methods, their theory and practice. A general knowledge of the methods employed in the chemical analysis of Milk and Butter. Adulteration of Milk, Cream, Butter, and Cheese—the ways in which adulteration is practised, the changes in composition thereby produced, and a general knowledge of the methods employed in detecting the same.

3. *The Chemistry of Feeding.*—The principal constituents of Food materials, and the functions they severally fulfil. The influence of Food constituents on milk production. Assimilation and Digestion. Animal Heat and Respiration. Milk as a Food. The relation of Food to Manure.

4. *Bacteriology.*—Moulds. Yeasts. Bacteria. The principal kinds of Bacteria met with in Dairying—their forms, methods of reproduction, and conditions of life. The influence of physical agencies upon Bacterial life. Air and Water as carriers of Bacteria. The changes produced by Bacteria in milk and its products. Useful forms and their functions. Harmful forms and their effects—Coagulation, Discoloration, Taints, &c. Pathogenic organisms. The classification of organisms—organised ferments and enzymes. Methods of preparation of pure cultures and their practical use. Nutritive media. Pasteurisation and Sterilisation—the practical application of these to Dairy matters. Fermentation and Putrefaction. Disinfectants and Preservatives.

#### IV.—PRACTICAL SKILL IN DAIRY WORK.

Candidates must be prepared—(1) to produce at or before the Examination a satisfactory certificate of proficiency in the Milking of Cows, signed by a practical Dairy Farmer, and to satisfy the Examiners by a practical test, if so required; (2) to churn and make into Butter a measured quantity of Cream; and (3) to make one Cheese of each of the following varieties: (i) Hard-pressed, of not less than 30 lb.; (ii) Veined or blue-moulded, of not less than 10 lb.; and (iii) also to make one or other of the following Soft Cheeses: Camembert, Coulommier, or Pont l'Évêque.

#### V.—CAPACITY FOR IMPARTING INSTRUCTION TO OTHERS.

Candidates must also show practically that they are familiar with the management of a Dairy, and are capable of imparting instruction to others.



The following obtained the Diploma in Scotland in 1910 :—

Miss CHRISTINA C. ARTHUR, 115 Finlay Drive, Dennistoun, Glasgow.  
 Miss AGNES BANNATYNE, North Ledaig Farm, Benderloch, near Oban.  
 Miss SUSANNA J. DEVERS, Clougherney, Carndonagh, Co. Donegal.  
 JAMES BRYCE FISHER, The Manse, Ringford, Kirkcudbright.  
 ANDREW THOMSON FOWLIE, Auchentumb, Strichen.  
 THOMAS GILLILAND, Haughyett Farm, Mauchline.  
 Miss JESSIE DOWNIE GRAY, Ballochallan, Callander.  
 THOMAS HAMILTON, 4 Stanley Terrace, Middlesbrough.  
 JEREMIAH ALFONSO HICKEY, Lisfuncheon, Cahir, Ireland.  
 Miss ELLEN LINDSAY IRELAND, East Balmuir, Arbroath.  
 SAMUEL ALEXANDER KILPATRICK, Kirkbryde, Kirkcolm, Stranraer.  
 RENWICK HUTSON LEITCH, Agnesville, Rothesay.  
 JAMES McLATCHIE, Millerston, Mauchline.  
 DANIEL GRANT O'BRIEN, 31 Methuen Park, Muswell Hill, London.  
 E. ERNEST W. PAYNTER, Battens, Berealston, Devon.  
 WILLIAM H. RASON, 54 Crystal Palace Park Road, Sydenham, London.  
 ALEXANDER EWING REID, 345 Bath Street, Glasgow.  
 Miss JEANIE S. REID, Merryhagen Farm, Auchentiber, Kilwinning.  
 Miss JANET STRANG, East Bedcow, Kirkintilloch.  
 WILLIAM STRANG, JUN., East Bedcow, Kirkintilloch.  
 HERBERT WIGNALL, Moss Lane, Hesketh Bank, near Preston.  
 DAVID WYLLIE, Glassock Farm, Fenwick, Kilmarnock.  
 Miss MARY F. YOUNG, Croilburn, Hareshaw Moor, Fenwick.

The following obtained the Diploma in England in 1910 :—

Miss MARION SUSAN BLUNT, Midland Agricultural and Dairy College, Kingston, Derby.  
 WILLIAM THOMAS CLARKE, British Dairy Institute, Reading.  
 Miss MAY EVANS CONNELL, Midland Agricultural and Dairy College, Kingston, Derby.  
 Miss MARY PERCIVAL COMER, Essex County Technical Laboratories, Chelmsford, and British Dairy Institute, Reading.  
 Miss RACHEL M. M. EVANS, University College of Wales, Aberystwyth.  
 JOHN EVENS, JUN., Midland Agricultural and Dairy College, Kingston, Derby.  
 Miss DOROTHY ALLEYNE FENTON, British Dairy Institute, Reading.  
 Miss ELEANOR FLINTOFF, Midland Agricultural and Dairy College, Kingston, Derby.  
 WILLOUGHBY V. FOOT, British Dairy Institute, Reading.  
 JUSTUS WATTS GEORGE, British Dairy Institute, Reading.  
 ROBERT HART, British Dairy Institute, Reading.  
 THOMAS BROWN HEWETSON, British Dairy Institute, Reading.  
 ERIC F. HURT, Midland Agricultural and Dairy College, Kingston, Derby.  
 DAVID HEDOG JONES, University College of Wales, Aberystwyth, and British Dairy Institute, Reading.  
 Miss ELSIE JONES, University College of Wales, Aberystwyth.  
 SAHIBZADA MAHMOOD ALI KHAN, British Dairy Institute, Reading.  
 GEORGE LALLEMAND, Agricultural College, Holmes Chapel, Cheshire, and British Dairy Institute, Reading.  
 A. K. YEGNA NARAYAN AIYER, British Dairy Institute, Reading.  
 REGINALD WOODROUGH NAYLOR, British Dairy Institute, Reading.  
 JOHN SAMUEL POWNALL, Midland Agricultural and Dairy College, Kingston, Derby.

ROBERT H. TOMPKINS, Hants. C.C. Farm School, Basing, and British Dairy Institute, Reading.  
 Mrs LILY VLADOYANO, British Dairy Institute, Reading.

#### EXAMINATION PAPERS OF PAST YEARS.

Copies of the Papers set at the Examinations in 1909 and 1910 may be had on application. Price 6d. per set.

## CHEMICAL DEPARTMENT

*Chemist to the Society*—JAMES HENDRICK, B.Sc., F.I.C., F.C.S.,  
 Agricultural Department, Marischal College, Aberdeen.

The object of the Chemical Department is to promote the diffusion of a knowledge of Chemistry as applied to agriculture among the members of the Society, to carry out experiments for that purpose, to assist members who are engaged in making local experiments requiring the direction or services of a chemist, to direct members in regard to the use of manures and feeding-stuffs, to assist them to put the purchase of these substances under proper control, and in general to consider all matters coming under the Society's notice in connection with the Chemistry of Agriculture.

#### MEMBERS' PRIVILEGES IN RESPECT OF ANALYSES.

The fees of the Chemist for analyses made for members of the Society shall, until further notice, be as follows:—

The estimation of *one* ingredient in a manure or feeding-stuff, . . . 5s.

The estimation of *two* or *more* ingredients in . . . do. . . 10s.

*These charges apply only to analyses made for agricultural purposes, and for the sole and private use of members of the Highland and Agricultural Society who are not engaged in the manufacture or sale of the substances analysed.*

Valuations of manures, according to the Society's scale of units, will be supplied if requested.

#### MISCELLANEOUS.

Analysis of water<sup>1</sup> to determine purity and fitness for domestic use (not more than one analysis per year for any one member), at reduced fee of . . .

£1 0 0

Analysis of agricultural products—hay, grain, ensilage, roots, &c., . . .

1 0 0

Milk, full analysis, . . .

0 10 0

Milk, solids and fat, . . .

0 5 0

" fat only, . . .

0 2 6

Butter, full analysis, . . .

0 10 0

partial analysis (water and fat), . . .

0 5 0

Cheese, . . .

0 10 0

Limestone, giving the percentage of lime, . . .

0 5 0

Limestone, complete analysis, . . .

1 0 0

<sup>1</sup> Cases containing bottles for water samples and instructions for sampling are sent from the laboratory on application.

Lime, including ground lime, percentage of alkaline lime, .	£0	5	0
" " " complete analysis, .	1	0	0
Analysis of soil, to determine fertility and recommendation of manurial treatment, . . . . .	1	10	0
Complete analysis of soil, . . . . .	2	10	0
Search for poisons in food or viscera, . . . . .	2	0	0
Sulphate of copper, percentage of copper and purity, .	0	5	0
" " complete analysis, . . . . .	0	10	0
Arsenic, carbolic acid and tar acids, and other poisons used in making sheep dips, &c., . . . . .	5s. to	£1	

Samples should be sent (carriage paid) to James Hendrick, B.Sc., Agricultural Department, Marischal College, Aberdeen.

*Note to Members sending Samples for Analysis.*

The Directors are anxious to take any steps in their power to expose the vendors of inferior fertilisers and feeding-stuffs, and the members can give them assistance in this by supplying to the chemist, when sending samples for analyses, information as to the guarantee, if any, on which the goods were sold, and also as to the price charged.

## INSTRUCTIONS FOR SELECTING SAMPLES FOR ANALYSIS.

### MANURES.

Any method of sampling mutually agreed upon between buyer and seller may be adopted, but the following method is recommended as a very complete and satisfactory one: Four or more bags should be selected for sampling. Each bag is to be emptied out separately on a clean floor, worked through with the spade, and one spadeful taken out and set aside. The four or more spadefuls thus set aside are to be mixed together until a uniform mixture is obtained. Of this mixture one spadeful is to be taken, spread on paper, and still more thoroughly mixed, any lumps which it may contain being broken down with the hand. Of this mixture two samples of about half a pound each should be taken by the purchaser or his agent, in the presence of the seller or his agent or two witnesses (due notice having been given to the seller of the time and place of sampling), and these samples should be taken as quickly as possible, and put into bottles or tin cases to prevent loss of moisture, and having been labelled, should be sealed by the samplers—one or more samples to be retained by the purchaser, and one to be sent to the chemist for analysis.

### FEEDING-STUFFS.

Samples of feeding-stuffs which are in the form of meal may be taken in a similar manner.

Samples of cake should be taken by selecting four or more cakes from the bulk. These should be natted to a size not larger than walnuts. The natted cake should then be thoroughly mixed and samples of not less than one pound each taken from it. The samples should be put into bottles or tins, sealed up, and labelled. One sample should be sent to the analyst, and one or more duplicates retained by the purchaser.

### SOILS.

Dig a little trench about two feet deep, exposing the soil and subsoil. Cut from the side of this trench vertical scrapings of the soil down to the top of the subsoil. Catch these on a clean board, and collect in this man-

ner two pounds of soil taken from the whole surface of the section. Similar scrapings of subsoil immediately below should be taken and preserved separately. Five or six similarly drawn samples at least should be taken from different parts of the field, and kept separate while being sent to the chemist, that he may examine them individually before mixing in the laboratory.

## VEGETABLE PRODUCTS.

*Turnips, &c.*, at least 50 bulbs carefully selected as of fair average growth.

*Hay, straw, ensilage, &c.*, should be sampled from a thin section cut across the whole stack or silo, and carefully mixed; above 2 lb. weight is required for analysis.

*Grain* should be sampled like manures.

## DAIRY PRODUCE.

*Milk*.—Samples of milk from individual cows should be taken direct from the milk-pail after complete milking. Average samples from a number of cows should be taken immediately after milking. Specify whether the sample is morning or evening milk, or a mixture of these. Samples to be tested for adulteration should not be drawn from the bottom or taken from the top of standing milk, but they should be ladled from the vessel after the milk has been thoroughly mixed. Samples of milk should be sent immediately to the analyst.

For most purposes a half-pint bottle of milk is a large enough sample.

*Butter and Cheese*.—About quarter-pound samples are required.

## WATERS.

When the water is from a well, it should be pumped for some minutes before taking the sample.

If the well has been standing unused for a long time, it should be pumped for some hours, so that the water may be renewed as far as possible.

If the well has been newly dug or cleaned out, it should be pumped as dry as possible, daily, for a week before taking the sample.

Water from cisterns, tanks, ponds, &c., should be sampled by immersing the bottle entirely under the water, and holding it, neck upwards, some inches below the surface. *Water from the surface should not be allowed to enter the bottle.*

Spring or stream water should not be sampled in very wet weather, but when the water is in ordinary condition. Such waters should be sampled by immersing the bottle, if possible; but if not deep enough for that purpose, a perfectly clean cup should be used for transferring the water to the bottle.

When the bottle has been filled the stopper should be rinsed in the water before replacing it.

Interference with or disturbance of wells or springs, or the ground in their immediate vicinity, must be carefully avoided during sampling, and for at least twenty-four hours before it.

After a sample has been taken, it should be sent to the laboratory as speedily as possible.

A description of the source and circumstances of the water should accompany the sample.

company the sample, as the interpretation of the analytical results depends to some extent on a knowledge of such particulars.

*N.B.*—Stone jars and old wine bottles are unsuitable for conveying samples. Winchester quarts chemically cleaned should be obtained from the laboratory, Marischal College, Aberdeen.

## LOCAL ANALYTICAL ASSOCIATIONS.

With the view of encouraging, as well as regulating the conduct of, Local Analytical Associations, the Society, from 1881 to 1893, contributed from its funds towards their expenses a sum not exceeding £250 annually. In view of the passing of the Fertilisers and Feeding Stuffs Act, 1893, it was decided, at a meeting of the Directors on the 6th of December 1893, to discontinue that grant after the 1st of March 1894.

## COMPOSITION AND CHARACTERISTICS OF MANURES AND FEEDING-STUFFS.

(See 'Transactions,' Fifth Series, vol. vi. 1899.)

## FORMS OF GUARANTEE

### GUARANTEE OF MANURE.

I guarantee that the manure called.....and sold by me to  
.....contains a minimum of—

<i>Soluble phosphoric acid</i>	=Phosphate of lime dissolved.....	per cent.
<i>Insoluble phosphoric acid</i>	=Phosphate of lime undissolved.....	per cent.
<i>Potash salts</i> . . .	=Potash ( $K_2O$ ) . . .	per cent.
<i>Total nitrogen</i> . . .	=Ammonia . . .	per cent.

Signature of seller.....

Date.....19...

### GUARANTEE OF FEEDING-STUFF.

I guarantee that the feeding-stuff called.....and sold by me to  
.....contains a minimum of—

. per cent albuminoids.  
. per cent oil.  
. per cent carbohydrates.

Signature of seller..

Date.....19...

# UNITS TO BE USED IN DETERMINING THE MARKET PRICE OF MANURES.<sup>1</sup>

*Terms*—CASH, including Bags gross weight—not including Carriage.

N.B.—These units are based on the RETAIL CASH PRICES OF MANURES at Leith and Glasgow. When these units are multiplied by the percentages in the analysis of a Manure, they will produce a value representing very nearly the *cash price* per ton at which TWO TONS may be bought in fine sowable condition at Leith or Glasgow. Larger purchases may be made on more favourable terms, but for smaller purchases an extra charge of 1s. 6d. per ton is made.

FOR SEASON 1911.

CASH PRICES AS FIXED ON 1ST FEBRUARY.

Items to be Valued.	Peruvian (Riddled).		Bone Meal.	Steamed Bone Flour.	Super- phosphates.	
	Nitrogenous.	Phosphatic.			Under 80% Sol.	30% Sol. or over.
	P. unit.	P. unit.	P. unit.	P. unit.	P. unit.	P. unit.
Phosphates dissolved . . . . .	1/4	1/4	..	..	1/10	1/9
" undissolved . . . . .			1/6	1/8	..	..
Potash . . . . .	3/6	3/6	..	..	..	..
Nitrogen . . . . .	17/	15/6	18/6	12/6	..	..
Prices <sup>2</sup> per ton—						
From . . . . .	120/ up- wards	95/ up- wards	122/6	88/-	47/6	
To . . . . .			180/-	95/-	70/-	

MANURES.			
At LEITH and GLASGOW, except in case of Thomas-slag phosphate.	Guarantee.	Price per Ton.	Unit.
	Per cent.	£ s. d.	
Sulphate of ammonia <sup>2</sup> . . . . .	20 Nitrogen	18 10 0	Nit.=18/6
Nitrate of soda, 95 per cent <sup>2</sup> . . . .	15·5 "	9 10 0	" =12/8
Muriate of potash, 80 per cent . . . .	50 Potash	8 17 6	Pot.=3/6½
Sulphate of potash . . . . .	52 "	10 15 0	" =4/2
Kaïnīt (unpulverised) . . . . .	12·4 "	2 6 8	" =3/6
Potash salts . . . . .	30 "	4 15 0	" =3/3
Basic slag (Thomas-phosphate pow- der), at place of production	22 Phosphate	1 5 0	Phos.=1/2
	80 "	1 15 0	" =1/2
	88 "	2 2 6	" =1/1½
Ground mineral phosphate . . . . .	60 "	2 5 0	" =1/1

NOTE.—This Schedule of Unit Prices of Manures and Feeding-Staffs is revised each year in the first week of February. Copies of the Schedule may be had by Members and Non-Members.

<sup>1</sup> Instructions regarding units and the valuation of manures are given on p. 34.

<sup>2</sup> These are the February prices, but they are subject to variation from month to month, or oftener.

FEEDING-STUFFS.				Price per ton at Leith and Glasgow.
	Average Analyses.			
	Album.	Oil.	Carbo- hydrates.	
Linseed-cake . . . . .	28	10	35	£ s. d. 9 5 0
"    Canadian or American . . . . .	30	8	35	8 17 6
Decorticated cotton-cake . . . . .	40	9	25	7 15 0
"    "    Seed-meal . . . . .	40	9	25	7 10 0
Undecorticated " (Egyptian) . . . . .	22	5	33	5 10 0
"    "    (Bombay) . . . . .	19	4.5	35	4 12 6
Soya-bean cake . . . . .	42	6	28	6 10 0
Soya-bean meal . . . . .	38	17	24	8 15 0
Bean-meal, English * . . . . .	25	1.5	50	7 17 6
Rice-bran, Rangoon . . . . .	12	13	50	5 5 0
Locust-bean meal . . . . .	6	1	70	5 12 6
Dried Distillery grains † . . . . .	20	8	45	5 7 6
"    Brewery or malt distillery grains † . . . . .	20	6	45	5 2 6
Indian corn (American) * . . . . .	10	5	70	5 4 0
Paisley meal (at Paisley) . . . . .	15	9	60	5 2 6
Linseed (whole) . . . . .	22	35	22	10 10 0
Treacle, best grocery . . . . .	..	..	..	5 2 6

\* These are the February prices, but they are subject to variation from month to month, or oftener.

† Bags included.

### CLASSIFICATION OF MANURES.

Peruvian guano . . . . .	{	Guanos with over 4 per cent of nitrogen are to be considered as nitrogenous. Those with less than this percentage are to be classed as phosphatic guano.
Bone-meal . . . . .	{	Genuine bone-meal contains from 48 per cent to 55 per cent phosphates, and from $3\frac{1}{2}$ per cent to $4\frac{1}{2}$ per cent nitrogen. If phosphates are low, nitrogen will be high, and conversely. If bone-meal is so finely ground that 90 per cent or over passes a sieve of $\frac{1}{16}$ -inch mesh, an addition of 2s. 6d. per ton should be made to the valuation.
Steamed bone-flour . . . . .	{	Ground to flour, and containing about 60 to 65 per cent phosphates and about 1 to $1\frac{1}{2}$ per cent nitrogen.
Dissolved bones . . . . .	{	Must be pure—i.e., containing nothing but bones and sulphuric acid.
Mixtures and compound manures †	{	To be valued according to the following unit prices: nitrogen, 18s. 8d.; soluble phosphate, 1s. 10d.; insoluble phosphate, 1s. 3d.; potash, 3s. 4d.; with an addition of 4s. per ton for bags and 7s. 6d. per ton for mixing. These units give the cash price at Leith and Glasgow. They apply only to mixtures made from high-class materials. For instance, the nitrogen of mixtures valued by these units should not be from shoddy, hair, or leather, or the insoluble phosphates from ground mineral phosphates.
Basic slag (Thomas-phosphate powder)	{	About 90 per cent of the phosphate should be citric soluble (official method of Board of Agriculture). Fineness of grinding is of importance. The coarsest kind used should be so finely ground that at least 80 per cent passes through a wire sieve of about 9600 holes per sq. inch.

† Low-grade mixed manures are sometimes sold under names calculated to lead purchasers to believe that they are made from materials of a valuable kind, which are either not present at all or form only a small percentage of the mixture. Purchasers should see that the analysis and the nature of the article correspond with the name.

## INSTRUCTIONS FOR VALUING MANURES.

The unit used for the valuation of manures is the hundredth part of a ton, and as the analyses of manures are expressed in parts per hundred, the percentage of any ingredient of a manure when multiplied by the price of the unit of that ingredient represents the value of the quantity of it contained in a ton.

As an example take muriate of potash—a good sample (see p. 35) will be guaranteed to contain 80 per cent *pure* muriate of potash; the other 20 per cent consisting of unimportant impurities, such as common salt. But all potash manures are valued according to the amount of POTASH they yield, and 80 per cent of pure muriate of potash yields 50 per cent potash ( $K_2O$ )—*i.e.*, 50 units per ton; and as a ton of muriate of potash costs £8, 17s. 6d., the price of the unit is the fiftieth part of that—*viz.*, 3s. 6½d. If on analysis a sample of muriate of potash guaranteed to contain 50 per cent of potash is found to contain only 49 per cent, the price per ton will be 3s. 6d. less—*viz.*, £8, 14s.

Similarly with all other manures, the price per unit is derived from the price per ton of a sample of good material up to its guarantee, and therefore the proper price per ton of a manure is found by multiplying the price of the unit of the valuable ingredient by the percentage as found by analysis. If a manure contains more than one valuable ingredient, the unit value of each ingredient is multiplied by its percentage, and the values so found when added together give approximately the price per ton of the manure.

Nitrate of soda contains no ammonia, but it contains nitrogen, and 14 units of nitrogen are equivalent to 17 units of ammonia.

The commercial values of manures are determined by means of the UNITS in the following manner:—

Take the analysis of the manure, and look for the following substances:—

Phosphates dissolved (or soluble phosphate)	} No other items but these are to be valued.
„ undissolved (or insoluble „	
Nitrogen . . . . .	
Potash . . . . .	

*Should the analysis or the guarantee not be expressed in that way, the chemist or the seller should be asked to state the quantities in these terms.*

Suppose the manure is bone-meal:—

An ordinary bone-meal will contain about 50 per cent phosphate and about 3½ per cent nitrogen. The units for bone-meal are 1s. 6d. for phosphate and 13s. 6d. for nitrogen. Therefore the value is—

Insol. phosphate, 50 times 1s. 6d., equal to	£3 15 0
Nitrogen, 3½ times 13s. 6d., equal to	2 10 7½

Say £6 5 7½ per ton.

Suppose the manure is a superphosphate,—say an ordinary superphosphate, with 38 per cent soluble phosphate and 2 per cent insoluble phosphate. It is valued thus:—

Sol. phosphate, 38 times 1s. 9d., equal to, say, £3, 6s. 6d. per ton.  
*Insoluble phosphate is not valued in a superphosphate.*

*Note.*—The units have reference solely to the Market Price of Manures, and not to their AGRICULTURAL VALUES.



*Thus, in stating the phosphate in bone meal at 1s. 6d. per unit, and that in steamed bone flour at 1s. 3d., it is meant that these are the prices per unit at which phosphate can be bought in these two manures; but it does not mean that the phosphate in the one is 3d. per unit better as a manure than that in the other. It is probably no better.*

## BOTANICAL DEPARTMENT

*Consulting Botanist to the Society—A. N. M'ALPINE,  
6 Blythswood Square, Glasgow.*

The Society have fixed the following rates of charge for the examination of plants and seeds for the *bona fide* and individual use and information of members of the Society (not being seedsmen), who are particularly requested, when applying to the Consulting Botanist, to mention the kind of examination they require, and to quote its number in the subjoined schedule. The charge for examination must be paid at the time of application, and the carriage of all parcels must be prepaid.

### *Scale of Charges.*

1. A report on the purity, amount, and nature of foreign materials, and the germinating power of a sample of seed, 1s.
2. Determination of the species of any weed or other plant, or of any vegetable parasite, with a report on its habits and the means for its extermination or prevention, 1s.
3. Report on any disease affecting farm crops, 1s.
4. Determination of the species of any natural grass or fodder plant, with a report on its habits and pasture or feeding value, 1s.

The Consulting Botanist's Reports are furnished to enable members—purchasers of seeds and corn for agricultural or horticultural purposes—to test the value of what they buy, and are not to be used or made available for advertising or trade purposes by seedsmen or otherwise.

### *Purchase of Seeds.*

The purchaser should obtain from the vendor, by invoice or other writing, the proper designation of the seed he buys, with a guarantee of the percentage of purity and germination, and of its freedom from ergot, and in the case of clover, from the seeds of dodder or broom-rape.

It is strongly recommended that the purchase of *prepared mixtures* of seeds should be avoided. The different seeds should be purchased separately and mixed by the farmer: mixtures cannot be tested for germination.

### *The Sampling of Seeds.*

The utmost care should be taken to secure a fair and honest sample. This should be drawn from the bulk delivered to the purchaser, and not from the sample sent by the vendor.

When legal evidence is required, the sample should be taken from the bulk, and placed in a sealed bag in the presence of a witness. Care should be taken that the sample and bulk be not tampered with after delivery, or mixed or brought in contact with any other sample or bulk.

At least one ounce of grass and other small seeds should be sent, and two ounces of cereals and the larger seeds. When the bulk is obviously impure the sample should be at least double the amount specified. Grass seeds should be sent at least four weeks, and seeds of clover and cereals two weeks, before they are to be used.

The exact name under which the sample has been sold and purchased should accompany it.

*Reporting the Results.*

The Report will be made on a schedule in which the nature and amount of impurities will be stated, and the number of days each sample has been under test, with the percentage of the seeds which have germinated.

"Hard" clover seeds, though not germinating within the time stated, will be considered good seeds, and their percentage separately stated.

The impurities in the sample, including the chaff of the species tested, will be specified in the schedule, and only the percentage of the pure seed of that species will be reported upon; but the REAL VALUE of the sample will be stated. The Real Value is the combined percentages of purity and germination, and is obtained by multiplying these percentages and dividing by 100: thus in a sample of Meadow Fescue having 88 per cent purity and 95 per cent germination, 88 multiplied by 95 gives 8360, and this divided by 100 gives 83·6, the Real Value.

*Selecting Specimens of Plants.*

The whole plant should be taken up and the earth shaken from the roots. If possible the plants must be in flower or fruit. They should be packed in a light box, or in a firm paper parcel.

Specimens of diseased plants or of parasites should be forwarded as fresh as possible. They should be placed in a bottle, or packed in tinfoil or oil-silk.

All specimens should be accompanied with a letter specifying the nature of the information required, and stating any local circumstances (soil, situation, &c.) which, in the opinion of the sender, would be likely to throw light on the inquiry.

Parcels or letters containing seeds or plants for examination (carriage or postage paid) must be addressed to Professor M'Alpine, Botanical Laboratory, 6 Blythswood Square, Glasgow.

## ENTOMOLOGICAL DEPARTMENT

*Consulting Entomologist to the Society*—Dr R. STEWART MACDOUGALL,  
9 Dryden Place, Edinburgh.

Arrangements have been made with Mr R. Stewart MacDougall, M.A., D.Sc., Edinburgh, to advise members of the Society regarding insects or allied animals which, in any stage of their development, infest—

- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| (a) Farm crops.                   | (d) Fruit and fruit trees.          |
| (b) Stored grain.                 | (e) Forest trees and stored timber  |
| (c) Garden and greenhouse plants. | (f) Live stock (including poultry). |

Members consulting Dr MacDougall will please forward with their queries examples of the injured plants, or the injured parts of plants, &c., as well as specimens of the insects or other animals believed to be the cause of the injury.

Specimens should be sent in tin or wooden boxes, or in quills, to prevent injury in transmission.

Address letters and parcels (carriage or postage paid) to Dr R. Stewart MacDougall, 9 Dryden Place, Edinburgh.

The Directors have fixed the fee payable by members to Dr MacDougall at 1s. for each case upon which he is consulted: this fee must be sent to him along with the application for information.

## PREMIUMS

### GENERAL REGULATIONS FOR COMPETITORS.

1. It is to be distinctly understood that the Society is not responsible for the views, statements, or opinions of any of the writers whose papers are published in the 'Transactions.'

2. All reports must be legibly written, and on one side of the paper only; they must specify the number and subject of the Premium for which they are in competition; they must bear a distinguishing motto, and be accompanied by a sealed letter, similarly marked, containing the name and address of the reporter—initials must not be used.

3. No sealed letter, unless belonging to a report found entitled to the Premium offered, or a portion of it, will be opened without the author's consent.

4. Reports for which a Premium, or a portion of a Premium, has been awarded, become the property of the Society, and cannot be published in whole or in part, nor circulated in any manner, without the consent of the Directors. All other papers will be returned to the authors if applied for within twelve months.

5. The Society is not bound to award the whole or any part of a Premium.

6. All reports must be of a practical character, containing the results of the writer's own observation or experiment, and the special conditions attached to each Premium must be strictly fulfilled. General essays, and papers compiled from books, will not be rewarded or accepted. Weights and measurements must be indicated by the imperial standards.

7. The Directors, before or after awarding a Premium, shall have power to require the writer of any report to verify the statements made in it.

8. The decisions of the Board of Directors are final and conclusive as to all matters relating to Premiums, whether for Reports or at General or District Shows; and it shall not be competent to raise any question or appeal touching such decisions before any other tribunal.

9. The Directors will welcome papers from any Contributor on any suitable subject, whether included in the Premium List or not; and if the topic and the treatment of it are both approved, the writer may be remunerated and his paper published.

## CLASS I.

## REPORTS.

## SECTION 1.—THE SCIENCE AND PRACTICE OF AGRICULTURE.

## FOR APPROVED REPORTS.

1. On any useful practice in Rural Economy adopted in other countries, and susceptible of being introduced with advantage into Scotland—The Gold Medal. To be lodged by 1st November in any year.

The purpose chiefly contemplated by the offer of this premium is to induce travellers to notice and record such particular practices as may seem calculated to benefit Scotland. The Report to be founded on personal observation.

2. Approved Reports on other suitable subjects. To be lodged by 1st November in any year.

## SECTION 2.—ESTATE IMPROVEMENTS.

## FOR APPROVED REPORTS.

1. By the Proprietor in Scotland who shall have executed the most judicious, successful, and extensive Improvement—The Gold Medal, or Ten Sovereigns. To be lodged by 1st November in any year.

Should the successful Report be written for the Proprietor by his resident factor or farm manager, a Minor Gold Medal will be awarded to the writer in addition to the Gold Medal to the Proprietor.

The merits of the Report will not be determined so much by the mere extent of the improvements, as by their character and relation to the size of the property. The improvements may comprise reclaiming, draining, enclosing, planting, road-making, building, and all other operations proper to landed estates. The period within which the operations may have been conducted is not limited, except that it must not exceed the term of the Reporter's proprietorship.

2. By the Proprietor or Tenant in Scotland who shall have reclaimed within the ten preceding years not less than forty acres of Waste Land—The Gold Medal, or Ten Sovereigns. To be lodged by 1st November in any year.

3. By the Tenant in Scotland who shall have reclaimed within the ten preceding years not less than twenty acres of Waste Land—The Gold Medal, or Ten Sovereigns. To be lodged by 1st November in any year.

4. By the Tenant in Scotland who shall have reclaimed not less than ten acres within a similar period—The Medium Gold

Medal, or Five Sovereigns. To be lodged by 1st November in any year.

The Reports in competition for Nos. 2, 3, and 4 may comprehend such general observations on the improvement of waste lands as the writer's experience may lead him to make, but must refer especially to the lands reclaimed—to the nature of the soil—the previous state and probable value of the subject—the obstacles opposed to its improvement—the details of the various operations—the mode of cultivation adopted—and the produce and value of the crops produced. As the required extent cannot be made up of different patches of land, the improvement must have relation to one subject; it must be of profitable character, and a rotation of crops must have been concluded before the date of the Report. *A detailed statement of the expenditure and return and a certified measurement of the ground are requisite.*

5. By the Proprietor or Tenant in Scotland who shall have improved within the ten preceding years the Pasturage of not less than thirty acres, by means of top-dressing, draining, or otherwise, without tillage, in situations where tillage may be inexpedient—The Gold Medal, or Ten Sovereigns. To be lodged by 1st November in any year.

6. By the Tenant in Scotland who shall have improved not less than ten acres within a similar period—The Minor Gold Medal. To be lodged by 1st November in any year.

Reports in competition for Nos. 5 and 6 must state the particular mode of management adopted, the substances applied, the elevation and nature of the soil, its previous natural products, and the changes produced.

### SECTION 3.—HIGHLAND INDUSTRIES AND FISHERIES.

#### FOR APPROVED REPORTS.

1. The best mode of treating native Wool; cleaning, carding, dyeing, spinning, knitting, and weaving by hand in the Highlands and Islands of Scotland—Five Sovereigns. To be lodged by 1st November in any year.

### SECTION 4.—MACHINERY.

#### FOR APPROVED REPORTS.

To be lodged by 1st November in any year.

### SECTION 5.—FORESTRY DEPARTMENT.

#### FOR APPROVED REPORTS.

1. On Plantations of not less than eight years' standing formed on deep peat-bog—The Medium Gold Medal, or Five Sovereigns. To be lodged by 1st November in any year.

The premium is strictly applicable to deep peat or flow moss; the condition of the moss previous to planting, as well as at the date of the Report should, if possible, be stated.

The Report must describe the mode and extent of the drainage, and the effect it has had in subsiding the moss—the trenching, levelling, or other preliminary operations that may have been performed on the surface—the mode of planting—kinds, sizes, and number of trees planted per acre—and their relative progress and value, as compared with plantations of a similar age and description grown on other soils in the vicinity.

## CLASS II.

### DISTRICT COMPETITIONS.

#### REGULATIONS 1911.

*Grants in aid of DISTRICT COMPETITIONS for 1912 must be applied for before 1st November 1911, on Forms to be obtained from the Secretary.*

*When a Money Grant has expired, the District cannot apply again for another Money Grant for four years.*

### SECTION I.—GRANTS TO DISTRICT SOCIETIES FOR HORSES, CATTLE, SHEEP, AND PIGS.

1. CLASS OF STOCK—LIMIT OF GRANTS, £340.—The Highland and Agricultural Society will make Grants to District Societies for prizes for *Breeding Animals* of any of the following Classes of Stock, viz. :—

#### *Cattle.*

Shorthorn.  
Aberdeen-Angus.  
Galloway.  
Highland.  
Ayrshire.  
Jersey.

#### *Sheep.*

Blackface.  
Cheviot.  
Border Leicester.  
Half-Bred.  
Shropshire.  
Oxford-Down.  
Suffolk.  
Wensleydale.

#### *Horses.*

Draught Horses.  
Hunters.  
Hackneys.  
Ponies.  
Shetland Ponies.

#### *Swine.*

Any Pure Breed.

Cross-bred animals are not eligible. The Prizes must be confined to *Breeding Animals*; “bullocks,” “geldings,” “wethers,” and “hog pigs” are excluded.

2. All Competitions must be at the instance of a local Society. A Committee of Management shall be appointed, and the Convener of the Committee must be a Member of the Highland and Agricultural Society.

3. GRANT TO DISTRICT, £12.—The portion of the Grant to any one District Society shall not exceed the sum of £12 in any one year.

4. ALLOCATION OF GRANT.—The Grant from the Highland and Agricultural Society is not to be applied as a Grant in aid of the Premiums offered by the Local Society, but must be offered in the form of separate Prizes for the Animals chosen; and the Prizes must be announced in the *Premium List and Catalogue of the Show* as “given by the Highland and Agricultural Society.”

5. CONTINUANCE OF GRANT THREE YEARS.—The Money Grant shall continue for three alternate years, provided always that the District Society

shall, in the two intermediate years, continue the competition by offering Premiums for the same class of Stock as that selected in each previous year to compete for the Highland and Agricultural Society's Prizes. If no competition takes place for two years the Grant expires.

6. When it is agreed to hold the General Show of the Society in any district, no provincial show shall be held in that district in the months of June, July, or August.

7. MEDALS IN INTERMEDIATE YEARS.—In the two alternate years the Highland and Agricultural Society will place three Silver Medals at the disposal of the District Societies, for the same classes of Stock as those for which the Money Premiums are offered, provided that not less than three lots are exhibited in the same class.

8. RULES OF COMPETITION.—The Rules of Competition for the Premiums, the Funds for which are derived from Grants of the Highland and Agricultural Society, shall be such as are generally enforced by the Society receiving the Grant for Premiums offered by itself.

9. AREA AND PARISHES—FIVE PARISHES.—When making application for Grants from the Highland and Agricultural Society, the District Society must delineate the area and the number of parishes comprised in the district, and, *except in special cases*, no District Society shall be entitled to a Grant whose show is not open to at least *five* Parishes.

10. REPORTS.—Blank Forms for Reports will be furnished to the Secretaries of the different District Societies. Both in the years when the Grant is offered and in the two intermediate years, detailed reports of the competition must be given on these Forms and lodged with the Secretary of the Highland and Agricultural Society as soon as possible after the Show, and in no case later than 1st November. These reports are subject to the approval of the Directors of the Highland and Agricultural Society, against whose decision there shall be no appeal. All Reports must be signed and certified as marked in the Form.

11. GRANTS—WHEN PAID.—The Grants made to District Societies will be paid in December after the Reports of the awards of the prizes have been received and found to be in order and passed by the Board of Directors, the Money Grants being paid to the Secretaries of the Local Societies and the Medals sent direct to the winners. *The Secretary of the District Society must not on any condition whatever pay any premium offered by the Highland and Agricultural Society until he has been informed that the awards are in order and has received the Grant from the Highland and Agricultural Society.*

12. RENEWAL OF APPLICATION.—No application for renewal of a Money Grant to a District Society will be entertained until the expiration of *four years* from the termination of the last Grant.

13. DISPOSAL OF APPLICATIONS.—In disposing of applications for District Grants, the Directors of the Highland and Agricultural Society shall keep in view the length of interval that has elapsed since the expiration of the last Grant, giving priority to those District Societies which have been longest off the list.

## DISTRICTS.

1. KINGLASSIE.—*Convener*, James Miller, Kininmonth, Kinglassie; *Secretary*, Alexander Wallace, Solicitor, Kirkcaldy. Granted 1907.
2. WEST LINTON.—*Convener*, John H. Forbes of Medwyn, West Linton; *Secretary*, F. W. Dyson, Chapelhill, Peebles. Granted 1907.
3. ABERDOUR.—*Convener*, W. J. Keith, Aberdour House, New Aberdour; *Secretary*, William Chapman, Woodhead, New Aberdour. Granted 1906. (In abeyance in 1908 on account of the Aberdeen Show.)

4. ROYAL NORTHERN.—*Convener*, George J. Walker, Hillside House, Portlethen; *Secretary*, Robert R. Ross, Balmoral Buildings, 67 Green, Aberdeen. Granted 1906. (In abeyance in 1908 on account of the Aberdeen Show.)
5. DUNBLANE.—*Convener*, A. H. Anderson, Kippendavie Estate Office, Dunblane; *Secretary*, John Stewart, Solicitor, Dunblane. Granted 1906. (In abeyance in 1909 on account of the Stirling Show.)
6. EAST KILBRIDE.—*Convener*, John Hamilton, Low Mains, East Kilbride; *Secretary*, William Strang, 24 George Square, Glasgow. Granted 1909.
7. LOWER WARD OF RENFREWSHIRE.—*Convener*, Sir Hugh Shaw Stewart, Bart., Ardgowan, Greenock; *Secretary*, A. Douglas Murray, 2 Church Place, Greenock. Granted 1909.
8. BUTE.—*Convener*, Colin M'Callum, Kilmichael, Bute; *Secretary*, James Fisher, 5 King Street, Rothesay. Granted 1909.
9. MONKTON, NEWTON, PRESTWICK, AND ST QUIVOX.—*Convener*, William Bowie, East Sanquhar, St Quivox; *Secretary*, Hugh Boyd, jun., 57 Main Street, Prestwick. Granted 1908. (In abeyance in 1909. No competition.)
10. CAMPSIE, STRATHBLANE, AND BALDERNOCK.—*Convener*, D. Y. Stewart, Carse of Trowan, Crieff; *Secretary*, Donald Ferguson, Dunlop Place, Lennoxton. Granted 1908. (In abeyance in 1909 on account of the Stirling Show.)
11. ESKDALE AND LIDDESDALE.—*Convener*, Thomas Gaskell, Murtholm, Langholm; *Secretary*, Alexander Thomson, British Linen Bank, Langholm. Granted 1908. (In abeyance in 1910 on account of the Dumfries Show.)
12. STRANRAER AND RHINS OF GALLOWAY.—*Convener*, James M'Clean, Auchneel, Stranraer; *Secretary*, Percy John Adair, Solicitor, Stranraer. Granted 1908. (In abeyance in 1910 on account of the Dumfries Show.)
13. ARGYLL.—*Convener*, C. G. P. Campbell of Stonefield, Ashens, Tarbert, Lochfyne; *Secretary*, James M'Dougall, South Cliff, Tarbert, Lochfyne. Granted 1910. (In abeyance in 1910—unable to hold a show.)
14. LARGS, CUMBRAE, AND WEMYSS BAY.—*Convener*, John Wilson Crawford of Kilburn, Largs; *Secretary*, James Smith, Gas Office, Largs. Granted 1911.
15. CLACKMANNANSHIRE UNION.—*Convener*, D. A. Kinross, Hillend, Clackmannan; *Secretary*, Alex. L. Roxburgh, Solicitor, Alloa. Granted 1911.
16. MOFFAT AND UPPER ANNANDALE.—*Convener*, Basil A. Hill, Archbank, Moffat; *Secretaries*, James Johnstone, Solicitor, Moffat, and John Young, High Street, Moffat. Granted 1911.
17. UNITED EAST LOTHIAN.—*Convener*, Thomas Elder, Stevenson Mains, Haddington; *Secretary*, John Stirling, Solicitor, Haddington. Granted 1911.
18. GLENKENS.—*Convener*, James C. Maitland Gordon of Renmure, Overton, New Galloway; *Secretary*, James M'Gill, High Street, New Galloway. Granted 1911.
19. STRATHENDRICK.—*Convener and Secretary*, W. Watson Murray, Carter House, Drymen. Granted 1911.
20. NEW CUMNOCK.—*Convener*, Robert Vallance, New Cumnock; *Secretary and Treasurer*, George Scott, New Cumnock. Granted 1911.
21. EDINBURGH AGRICULTURAL ASSOCIATION.—*President*, The Earl of Rosebery, K.G., Dalmeny Park, Edinburgh; *Secretary*, James Wylie, Royal Bank, Leith. Granted 1909.



22. BATHGATE.—*Convener*, William White, Royal Hotel, Bathgate; *Secretary*, Hugh A. Heggie, Solicitor, Bathgate. Granted 1908.
23. MAR.—*Convener*, Charles Rennie, West Fintray, Kintore; *Secretary*, Neil Smith, Blackburn, Kinellar. Granted 1907. (In abeyance in 1908 on account of the Aberdeen Show.)
24. BUCHAN.—*President*, Lieut.-Colonel Ferguson of Pitfour, Mintlaw; *Secretary*, James A. Smith, Bank House, Strichen. Granted 1910.
25. INVERURIE.—*Convener*, Robert Bruce, Heatherwick, Inverurie; *Secretary*, John Strachan, 9 Albert Street, Inverurie. Granted 1910.
26. GIRVAN.—*Convener*, William Bone, Shalloch Park, Girvan; *Secretary*, Andrew Dunlop, Royal Bank, Girvan. Granted 1910.
27. STIRLING.—*Convener*, James Paterson, Burnbank, Blair-Drummond; *Secretary*, Andrew C. Buchanan, 26 Port Street, Stirling. Granted 1910.
28. NITHSDALE.—*Convener*, William Barber of Terreran, Moniaive; *Secretary*, David Paterson, Solicitor, Thornhill. Granted 1909. (In abeyance in 1910 on account of the Dumfries Show.)
29. ST MARY'S ISLE ESTATES AND DISTRICT.—*Convener*, John Wilkinson, The Grange, Kirkcudbright; *Secretary*, John Gibson, Solicitor, Kirkcudbright. Granted 1909. (In abeyance in 1910 on account of the Dumfries Show.)
30. WIGTOWN.—*Convener and Secretary*, William Murray, Borrowmoss, Wigtown. Granted 1909. (In abeyance in 1910 on account of the Dumfries Show.)
31. SUTHERLAND.—*Convener*, John Risk, Clynelish, Brora; *Secretary*, Peter Stuart, Clynelish, Brora. Granted 1908. (In abeyance in 1911 on account of the Inverness Show.)
32. STRATHSPEY.—*Convener*, J. Grant Smith, Strathspey Estate Office, Grantown-on-Spey; *Secretary*, John Mackintosh, Solicitor, Grantown-on-Spey. Granted 1909. (In abeyance in 1911 on account of the Inverness Show.)
33. WESTER ROSS.—*Convener*, William Stirling, Fairburn, Muir of Ord; *Secretary*, James Cumming, County Buildings, Dingwall. Granted 1909. (In abeyance in 1911 on account of the Inverness Show.)

In 1911.

Nos. 1, 2, 3, 4, and 5 are in competition for the last year.

Nos. 6, 7, 8, 9, 10, 11, and 12 are in competition for the second year.

Nos. 13, 14, 15, 16, 17, 18, and 19 are in competition for the first year.

Nos. 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30 compete for local Premiums.

Nos. 31, 32, and 33 are in abeyance on account of the Inverness Show.

## SECTION 2.—GRANTS TO HORSE ASSOCIATIONS, &c., FOR STALLIONS FOR AGRICULTURAL PURPOSES.

1. HORSES—LIMIT OF GRANT, £210.—The Highland and Agricultural Society will make Grants to Horse Associations and other Societies in different districts engaging Stallions for agricultural purposes. The total sum expended by the Highland and Agricultural Society in such Grants shall not exceed the sum of £210 in any one year.

2. GRANT TO EACH, £15.—The portion of the Grant to any one Horse Association, &c., shall not exceed the sum of £15 in any one year.

3. CONTINUANCE OF GRANT THREE YEARS—INTERMEDIATE YEAR.—The Grant shall continue for three alternate years, provided always that the Horse Association or Society shall, in the two intermediate years, offer at least a sum equal in amount to that granted by the Highland and Agricultural Society for the hire of a Horse in connection with the Association or Society to whom the Grant is made.

4. PENALTY FOR NOT ENGAGING HORSE.—In the event of a Horse not being engaged in any one year while the provisions of the Grant are in force, the Grant made by the Highland and Agricultural Society will cease.

5. RULES 2 (Committee and Convener), 9 (Reports), 10 (Time of Payment), 11 (Renewal of Grant), and 12 (Disposal of Applications) applicable to Section 1, shall be applicable to Section 2.

### DISTRICTS.

1. COWAL.—*Convener and Secretary*, John M'Alister, Ardyne, Toward. Granted 1907.
2. KINTYRE.—*Convener*, John Gemmell, Dalrioch, Campbeltown; *Secretary*, Hugh Baird, Campbeltown. Granted 1907.
3. WESTERN DISTRICT OF MID-LOTHIAN.—*Convener*, J. E. Stoddart of Howden, Mid-Calder; *Secretary*, J. T. Mungle, Bank House, West Calder. Granted 1907.
4. ROSS-SHIRE.—*Convener*, Andrew Mackenzie of Dalmore, Alness; *Secretary*, John Ross, Millcraig, Fearn. Granted 1907.
5. FYVIE.—*Convener*, James Durno, Jackstown, Rothie Brisbane, Fyvie; *Secretary*, John Ferguson, Westertown, Rothienorman. Granted 1909.
6. TURRIF.—*Convener*, Alexander Reid, Balgreen, Turriff; *Secretary*, R. Cruickshank, Claymires, Turriff. Granted 1909.
7. POUTALLOCH.—*Convener*, Matthew Andrew, Drimvore, Lochgilphead; *Secretary*, Archd. Taylor, Ricruin, Lochgilphead. Granted 1909.
8. NAIRNSHIRE.—*Convener*, Donald A. Stewart, Lochdhu, Nairn; *Secretary*, Archd. J. Mackintosh, St Colma, Auldearn, Nairn. Granted 1909.
9. VALE OF ALFORD.—*Convener*, W. A. Mitchell, Auchnagathle, Keig; *Secretary*, John Reid, Donbank, Alford. Granted 1911.
10. LOCKERBIE.—*Convener*, John M. Aitken, Norwood, Lockerbie; *Secretary*, J. R. Byres, Royal Bank Buildings, Lockerbie. Granted 1911.
11. PERTH AND COUPAR-ANGUS.—*Convener*, W. S. Ferguson, Pictstonhill, Perth; *Secretary*, James Stewart, Friarton, Perth. Granted 1911.
12. NEWTON-STEWART.—*Convener*, Wm. M'Connell, Lynnwood, Newton Stewart; *Secretary*, John M'Conchie, Carsewillock, Creetown. Granted 1911.
13. LAUDERDALE.—*Convener*, John M'Dougal, Lylestone, Lauder; *Secretary*, George L. Broomfield, Lauder. Granted 1908.
14. KIRRIEMUIR.—*Convener*, John Duncan, Muirhouses, Kirriemuir; *Secretary*, Stewart Lindsay, Crawford House, Kirriemuir. Granted 1908.
15. HOWE OF THE MEARNS.—*Convener*, James Alexander, Barr, Laurencekirk; *Secretary*, G. T. Brown, Cairnabeg, Fordean. Granted 1908.

16. GLENKENS AND DISTRICT.—*Convener*, John Young of Brockloch, Dalbeattie; *Secretary*, Robert T. Scott, Drumh Humphrey, Corsock, Dalbeattie. Granted 1908.
17. ORKNEY.—*Convener*, James Johnston of Coubister, Orphir, Orkney; *Secretary*, Robt. Scarth, Binscarth, Finstown, Orkney. Granted 1908.
18. DUNBLANE, DOUNE, AND CALLANDER.—*Convener*, James Paterson, Burnbank, Blair-Drummond; *Secretary*, W. D. McLaren, Drummore, Doune. Granted 1910.
19. STIRLING.—*Convener*, James Rodger, Keir Mains, Dunblane; *Secretary*, Robert Paterson, Hill of Drip, Stirling. Granted 1910.
20. WEST OF FIFE.—*Convener*, R. Jeffrey, Drumfin, Torryburn, Inverkeithing; *Secretary*, James Millar, Waulkmill, Charleston. Granted 1910.

#### In 1911.

- Nos. 1, 2, 3, and 4 are in competition for the last year.  
 Nos. 5, 6, 7, and 8 are in competition for the second year.  
 Nos. 9, 10, 11, and 12 are in competition for the first year.  
 Nos. 13, 14, 15, 16, 17, 18, 19, and 20 compete for local premiums.

#### SPECIAL GRANTS.

- £50 for development of the Poultry Industry in the Highlands. Granted in 1909 for 3 years.
- £40 to the Highland Home Industries Association.—*Secretary*, Miss Jessie D. C. Ross, Riverfield, Inverness. Granted 1895. (Did not hold a competition in 1899, 1900, or 1908.)
- £20 to the Ayrshire Agricultural Association, to be competed for at the Dairy Produce Show at Kilmarnock.—*Convener*, James Middleton, Estate Office, Braehead, Kilmarnock; *Secretary*, John Howie, 58 Alloway Street, Ayr. Granted 1872.
- £5 to Shetland Agricultural Society.—*Convener*, J. M. Goudie, Lerwick; *Secretary*, James J. Brown, Lerwick. Granted 1893. (In abeyance 1911.)
- £5 to Ross-shire Crofters' Show.—*Convener*, T. W. Cuthbert, Achandunie, Alness; *Secretary*, Hector Ross, Banker, Alness. Granted 1910 for 3 alternate years, and 2 Silver Medals in the 2 intermediate years, which may be awarded to animals of any pure breed or cross. (Medals 1911.)
- £3 to Orkney.—*Convener and Secretary*, James Johnston, Orphir House, Orphir, Orkney. Granted 1883.
- £3 to East Mainland, Orkney.—*Convener*, Alfred Reid, Braebuster, Kirkwall; *Secretary*, John Clouston, Graemeshall, Holm, by Kirkwall. Granted 1898.
- £3 to West Mainland, Orkney.—*Convener*, W. G. T. Watt, Skail House, Stromness; *Secretary*, J. M. H. Robertson, Lyking, Sandwick, Orkney. Granted 1900. (In abeyance 1911.)
- £3 to Sanday, Orkney.—*Convener*, W. Cowper Ward, Scar House, Sanday, Orkney; *Secretary*, K. H. Sinclair, Kettletoft, Sanday, Orkney. Granted 1902.
- £3 to Rousay, Orkney.—*Convener*, H. H. Horne, Trumland Farm, Rousay, Orkney; *Secretary*, Allan Gibson, Myres, Sourin, Rousay. Granted 1903. (In abeyance 1911.)
- £3 to Gigha Agricultural Society.—*Convener*, W. J. Yorke Scarlett, of Gigha; *Secretary*, W. W. Philip, Estate Office, Gigha. Granted 1909 for 3 alternate years.

- £3 to Walls and Hoy.—*Convener*, Anderson Sutherland, Manclet, Brims, Walls, Orkney; *Secretary*, William Marwick, Melsetter, Orkney. Granted 1909 for 3 alternate years.
- £3 to South Ronaldshay and Burray, Orkney.—*Convener*, Arch. Allan, St Margaret's Hope, Orkney; *Joint-Secretaries*, William Cromarty, Widewall House, and Robert Cromarty, Sandwick House, St Margaret's Hope, Orkney. Granted 1904. (In abeyance 1911.)
- £3 to Unst, Shetland.—*Convener*, L. Edmondston of Bunes, Unst; *Secretary*, Mountford A. White, Belmont, Unst. Granted 1911 for 3 alternate years.
- The British Dairymaids' Association.—*Secretary*, Miss J. Barbour, N.D.D., Levenhall, Musselburgh. 1 Minor Gold Medal and 1 Medium Silver Medal for Champion Butter-making Competitions. Granted 1908.
- Glasgow and West of Scotland Horticultural Society.—*Secretary*, Hugh M. Mackie, C.A., 124 St Vincent Street, Glasgow. Special Grant of 6 Silver Medals to be competed for at Show to be held in the Scottish National Exhibition, Glasgow, 1911.
- Carnwath Horticultural Society.—*Secretary*, Geo. C. Murray, The Schoolhouse, Carnwath. Special grant of 2 Medium Silver Medals to be competed for at Jubilee Show, 1911.

#### MEDALS IN AID OF PREMIUMS GIVEN BY LOCAL SOCIETIES.

The Society, being anxious to co-operate with local Associations, will give a limited number of Silver Medals annually to Societies, not on the list of Cattle, Horse, or Sheep Premiums, in addition to the Money Premiums awarded in the Districts, for—

1. Best Bull, Cow, or Heifer of any pure breed included in Section 1.
2. Best Stallion, or Mare of any pure breed included in Section 1.
3. Best Tup, or Pen of Ewes of any pure breed included in Section 1.
4. Best Boar, Sow, or Breeding-Pig of any pure breed.
5. Best Pens of Poultry.
6. Best Sample of any variety of Wool.
7. Best Sample of any variety of Seeds.
8. Best managed Farm.
9. Best managed Green Crop.
10. Best managed Hay Crop.
11. Best managed Dairy.
12. Best Sweet-Milk Cheese.
13. Best Cured Butter.
14. Best Fresh Butter.
15. Best collection of Roots.
16. Best kept Fences.
17. Male Farm Servant who has been longest in the same service, and who has proved himself most efficient in his duties, and to have invariably treated the animals under his charge with kindness.
18. Female Servant in charge of Dairy and Poultry who has been longest in the same service, and who has proved herself most efficient in her duties, and to have invariably treated the animals under her charge with kindness.
19. Best Sheep-Shearer.
20. Most expert Hedge-Cutter.
21. Most expert Labourer at Draining.
22. Best Maker of Oat-Cakes.

It is left to the local Society to choose out of the foregoing list the classes for which the Medals are to be competed for.

The Medals are granted for two years, and lapse if not awarded in those years.

No Society shall receive more than two Medals for two years.

*Aberdeenshire.*

1. UPPER DONSIDER.—*Convener*, William D. Ellis, Kinclune, Glenkindie; *Secretary*, John Milne, Honeyburrel, Kildrummy, Mossat. 2 Medals. 1911.
2. TURRIFF.—*Convener*, Alexander Reid, Balgreen, King Edward; *Secretary*, R. Cruickshanks, Claymires, Turriff. 2 Medals. 1910.

*Argyllshire.*

3. DUNOON.—*Convener*, Archd. Mercer, Francis Place, Dunoon; *Secretary*, John Dobie, Clydesdale Bank, Dunoon. 2 Medals. 1910.

*Ayrshire.*

4. ARDROSSAN AND WEST KILBRIDE.—*Convener*, William Kean, Chapelton Farm, West Kilbride; *Secretary*, William Gray, Solicitor, Ardrossan. 2 Medals. 1911.
5. BEITH.—*Convener*, Daniel Reid, Knowes, Beith; *Secretary*, Matthew Gilmour, Clydesdale Bank, Beith. 2 Medals. 1911.

*Banffshire.*

6. NORTHERN SEEDS AND ROOTS ASSOCIATION.—*Convener*, L. E. Longmore, Baldavie, Boyndie, Banff; *Secretary*, James Young, 28 Seafeld Street, Portsoy. 2 Medals. 1910.

*Dumfriesshire.*

7. SANQUHAR.—*Convener*, Robert Sandilands, Corsebank, Sanquhar; *Secretary*, Wm. Murray, British Linen Bank, Sanquhar. 2 Medals. 1909. (Only 1 Medal awarded in 1910.) 1 Medal in 1911.

*Fifeshire.*

8. FIFE.—*Convener*, David Ferrie, Parbroath, Cupar; *Secretary*, F. W. Christie, Castlefield, Cupar-Fife. 2 Medals. 1910.
9. STRATHMIGLO.—*Convener*, John M. Wilkie, West Mill, Strathmiglo; *Secretary*, Alex. Reekie, High Street, Strathmiglo. 2 Medals. 1911.
10. WESTERN DISTRICT OF FIFE.—*Convener*, Adam Easson, Merryhill, Charlestown; *Secretary*, Robert Husband, 1 Douglas Street, Dunfermline. 2 Medals. 1911.

*Inverness-shire.*

11. LOCHABER.—*Convener*, R. Everard Jones, Fassfern, Kinlochiel, R.S.O.; *Secretaries*, N. B. Mackenzie, jun., Fort William, and Wm. E. Jones, Fassfern, Kinlochiel, R.S.O. 2 Medals. 1910.
12. NORTH UIST.—*Convener*, M. T. Mackenzie, Scolpaig, N. Uist; *Secretary*, H. H. Mackenzie, Balelone, Lochmaddy. 2 Medals. Granted 1910 for three years.

*Lanarkshire.*

13. CARNWATH.—*Convener*, William Muir, Townhead, Libberton, Carnwath; *Secretary*, William Paxton, Carnwath. 2 Medals. 1911.  
14. OLD MONKLAND.—*Convener*, John Findlay, Springhill, Baillieston; *Secretary*, Hugh Wallace, Municipal Buildings, Coatbridge. 2 Medals. 1910.

*Perthshire.*

15. ROSSIE PRIORY AND DISTRICT.—*Convener*, Thomas A. Hollingworth, Newmains, Inchtute; *Secretary*, John E. Murray, Balruddery, Dundee. 2 Medals. 1911.

*Renfrewshire.*

16. NEILSTON.—*Convener*, William Taylor, Park Mains, Renfrew; *Secretary*, Robert Young, Clydesdale Bank, Neilston. 2 Medals. 1910.

*Stirlingshire.*

17. DENNY AND DUNIPACE.—*Convener*, John Risk, Bankier, Castlecary; *Secretary*, Alexander Hendry, Town Clerk's Office, Denny. 2 Medals. 1910.

Applications from other Districts must be lodged with the Secretary of the Society by 1st November next.

## RULES OF COMPETITION.

1. All Competitions must be at the instance of a local Society.
2. The classes for which Medals are granted must be in accordance with the list at page 49. The Committee shall select the classes, and specify them in the Report.
3. A Committee of Management shall be appointed, and the Convener of the Committee must be a Member of the Highland and Agricultural Society.
4. The Money Premiums given in the District must be not less than £2 for each Medal claimed.
5. The Medal for Sheep-Shearing shall always accompany the highest Money Premium.
6. There must not be fewer than three competitors in all the classes.
7. Regarding Reports, despatch of Medals, and application for renewal of Grant, Rules 9 and 10, Section I., will apply.
8. When a grant of Medals has expired, the District cannot apply again for Medals for two years.

### PLOUGHING COMPETITIONS.

The Minor Silver Medal will be given to the winner of the first Premium at Ploughing Competitions, provided a Report in the following terms is made to the Secretary, within one month of the Competition, by a Member of the Society. Forms of Report to be had on application:—

#### FORM OF REPORT.

I, \_\_\_\_\_ of \_\_\_\_\_, Member of the Highland and Agricultural Society, hereby certify that I attended the Ploughing Match of the \_\_\_\_\_ Association at \_\_\_\_\_ in the county of \_\_\_\_\_ on the \_\_\_\_\_ when \_\_\_\_\_ ploughs competed; \_\_\_\_\_ of land were assigned to each, and \_\_\_\_\_ hours were allowed for the execution of the work. The sum of £ \_\_\_\_\_ was awarded in the following proportions, viz. :—

*[Here enumerate the names and designations of successful Competitors.]*

#### RULES OF COMPETITION.

1. All Matches must be at the instance of a local Society or Ploughing Association, and no Match at the instance of an individual, or confined to the tenants of one estate, will be recognised.
2. The title of such Society or Association, together with the name and address of its Secretary, must be registered with the Secretary of the Highland and Agricultural Society, 3 George IV. Bridge, Edinburgh.
3. Not more than one Match in the same season can take place within the bounds of the same Society or Association.
4. All reports must be lodged within one month of the date of the Match, and certified by a Member of the Highland and Agricultural Society who was present at it.
5. A Member can only report one Match; and a Ploughman cannot carry more than three Medals in the same season.
6. To warrant the grant of the Medal there must have been twelve ploughs in Competition, and not less than Three Pounds awarded in Prizes by the local Society. The Medal to be given to the winner of the first prize.
7. The Local Committee or Society may, if they desire, arrange to let each ploughman have one person to guide the horses for the first two and the last two furrows, but in no case shall ploughmen receive any other assistance, and their work must not be set up nor touched by others. Attention should be given to the firmness and sufficiency of the work below more than to its neatness above the surface.
8. The Local Committee is required to fix the time to be allowed for ploughing the portion of land, and they are recommended that the time be at the rate of not more than ten hours per imperial acre on light land, and fourteen hours on heavy or stony land.

## CLASS III.

## COTTAGES AND GARDENS.

The following Premiums are offered for Competition in the Parishes after mentioned.

The Premiums are granted for two years.

## PREMIUMS FOR BEST KEPT COTTAGES AND GARDENS.

1. Best kept Cottage	.	.	.	.	.	£1	0	0
Second best	.	.	.	.	.	0	10	0
2. Best kept Cottage Garden	.	.	.	.	.	1	0	0
Second best	.	.	.	.	.	0	10	0

## RULES OF COMPETITION.

1. Competitions may take place in the different parishes for Cottages and Gardens, or for either separately.

2. The occupiers of Lodges at Gentlemen's Approach Gates and Gardeners' Houses are excluded, as well as others whom the Committee consider, from their position, not to be entitled to compete. The inspection must be completed by the 1st of October. In making the inspection, the Conveners may take the assistance of any competent judges.

3. It is left to the Committee of the District to regulate the maximum annual rent of the Cottages, which may, with the garden, be from £5 to £7.

4. To warrant the award of full Premiums, there must not be fewer than three competitors in each class. If there are less than three competitors in each class, only half Premium will be awarded.

5. A person who has gained the highest Premium cannot compete again.

6. If the Cottage is occupied by the proprietor, the roof must be in good repair; if the roof is thatch, it must be in good repair, though in the occupation of a tenant. The interior and external conveniences must be clean and orderly; the windows must be free of broken glass, clean, and affording the means of ventilation. Dunghills, and all other nuisances, must be removed from the front and gables. In awarding the Cottage Premiums, preference will be given to Competitors who, in addition to the above requisites, have displayed the greatest taste in ornamenting the exterior of their houses, and the ground in front and at the gables.

7. In estimating the claims for the Garden Premiums, the judges should have in view—the sufficiency and neatness of the fences and walks; the cleanness of the ground; the quality and choice of the crops; and the general productiveness of the garden.

8. Reports, stating the number of Competitors, the names of successful parties, and the nature of the exertions which have been made by them, must be lodged with the Secretary of the Highland and Agricultural Society on or before the 1st November next.

9. When a grant of Money has expired, the District cannot apply again for aid for four years.

Parishes desirous of these Premiums must lodge applications with the Secretary on or before the 1st November next.



### MEDALS FOR COTTAGES AND GARDENS OR GARDEN PRODUCE, POULTRY, AND BEE-KEEPING.

1. The Society will give annually one or two Minor Silver Medals to a limited number of local Associations or individuals, who establish Competitions and Premiums for Cottages, Gardens, Garden Produce, or Bee-Keeping. The Medals will be granted for two years.

2. The Medals may be offered in any two of the following sections, *but under no circumstances will the two Medals be given in one of the sections:—*

(1) Best kept Cottage or best kept Cottage and Garden. (One Medal only.)

(2) Best kept Garden. (One Medal only.)

(3) Best Collection of Garden Produce—Flowers excluded. (One Medal only.)

(4) Best Pen of Poultry.

(5) Honey. (One Medal only.)

3. The annual value of each Cottage, with the ground occupied in the parish by a Competitor, must not exceed £15. The occupiers of Lodges at Gentlemen's Approach Gates, and Gardeners in the employment of others, are not entitled to compete.

4. If Competition takes place for Garden Produce, such produce must be *bona fide* grown in the Exhibitor's Garden. He will not be allowed to make up a collection from any other Garden. The produce must consist of Vegetables, or Vegetables and Fruit (not Fruit alone). Flowers are excluded.

5. The Honey must be the produce of the Exhibitor's own Hives.

6. To warrant the award of a Medal, there must not be fewer than three Competitors.

7. Blank forms for Reports of Competitions will be furnished to the Secretaries of the different Districts. These must, in all details, be completed and lodged with the Secretary of the Highland and Agricultural Society as soon as possible after the Show, and in no case later than *1st November*, for the approval of the Directors, against whose decisions there shall be no appeal.

8. When a grant of Medals has expired, the District cannot apply again for aid for two years, and if no competition takes place in a District for two years the grant expires.

9. Applications for these Medals must be made *before 1st November next*.

#### *Aberdeenshire.*

1. CORGARFF INDUSTRIAL EXHIBITION.—*Convener*, J. Tait, Ordgarff, Corgarff; *Secretary*, J. F. Philip, Garchory, Corgarff, Strathdon. 2 Medals. 1910.

2. INSCH.—*Convener and Secretary*, W. A. Macdonald, Solicitor, Insch. 2 Medals. 1910.

#### *Argyllshire.*

3. FORESTERS' AND GARDENERS' SOCIETY OF ARGYLL.—*Convener*, John D. Sutherland, Ardconnel Lodge, Oban; *Secretary*, L. A. M'Naught, jun., 111 George Street, Oban. 2 Medals. 1911.

#### *Banffshire.*

4. CORNHILL.—*Convener*, Alex. Morrison, Loanhead, Boyndie; *Secretary*, James Benzie, Cornhill, Banff. 2 Medals. 1910.

*Caithness-shire.*

5. CAITHNESS BEE-KEEPERS.—*Convener and Secretary*, John Young, Barrock Schoolhouse, Wick. 2 Medals. 1911.

*Fifeshire.*

6. NEWBURGH AND DISTRICT.—*Convener*, James Cameron, Tayside, Newburgh; *Secretary*, William Duncan, 23 High Street, Newburgh. 2 Medals. 1911.
7. WEMYSS.—*Convener*, David Cunningham, Coaltown of Wemyss; *Secretary*, William Watson, jun., 5 Lochend Crescent, Coaltown of Wemyss. 2 Medals. 1911.

*Kirkcudbrightshire.*

8. URR.—*Convener*, Rev. D. Frew, The Manse, Urr, Dalbeattie; *Secretary*, Q. Aird, The Schoolhouse, Hardgate, Dalbeattie. 2 Medals. 1910.

*Lanarkshire.*

9. BOTHWELL AND UDDINGSTON.—*Convener*, George Russell, 41 Main Street, Uddingston; *Secretary*, Hew Young, 7 Kyle Park, Uddingston. 2 Medals. 1910.

*Peeblesshire.*

10. CARLOPS.—*Convener*, Ewen Cameron, Rutherford, Carlops; *Secretary*, Rev. W. Frank Bruce, Carlops. 2 Medals. 1911.

*Perthshire.*

11. DUNBLANE.—*Convener*, Alexander B. Barty, Solicitor, Dunblane; *Secretary*, H. R. Hume, Ellenslea, Dunblane. 2 Medals. 1909.
12. WEST CARSE.—*Convener*, John Sprunt, Schoolhouse, Kinfauns; *Secretary*, James D. Robb, Inchyra, Glencarse, Perth. 2 Medals. 1911.

*Stirlingshire.*

13. CAMPSIE.—*Convener*, James Morrison, Birbiston, Lennoxton; *Secretary*, William Smith, Geelong, Lennoxton. 2 Medals. 1911.

*Wigtownshire.*

14. PORTWILLIAM.—*Convener*, Dr Wm. M'D. Selby, Portwilliam; *Joint-Secretaries*, R. C. M'Master and William Dickson, Portwilliam. 2 Medals. 1910.



FIRST EDITION.]

NOTE.—From 19th till 27th July all communications should be addressed to the “Secretary’s Office, Showyard, Inverness.”

*Address for Telegrams—“SOCIETY,” EDINBURGH.*

Subject to Orders issued by the Board of Agriculture

# HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND

## GENERAL SHOW OF STOCK AND IMPLEMENTS IN TOWN PARK, TOMNAHURICH, INVERNESS,

ON 25TH, 26TH, 27TH, AND 28TH JULY 1911.

### LAST DAYS OF ENTRY.

IMPLEMENTS AND OTHER ARTICLES—Monday, 15th May.

STOCK, POULTRY, AND DAIRY PRODUCE—Friday, 9th June.

No Entry at ordinary fees taken later than those which are received at the Society’s Office, Edinburgh, by first post, or 10 o’clock, on Friday morning (9th June). Post Entries for Cattle, Horses, Sheep, and Swine taken on payment of 10s. additional for each entry (Poultry and Dairy Produce at double fees) till Wednesday morning (14th June), at the Society’s Office, Edinburgh, at 10 o’clock.

*President of the Society.*

LORD LOVAT, C.B., K.C.V.O., A.D.C.

*Chairman of the Board of Directors.*

C. H. SCOTT PLUMMER OF SUNDERLAND HALL.

*Convenor of the Local Committee.*

SIR JOHN MACPHERSON GRANT, BART.

The District connected with the Show comprises the Counties of Inverness, Elgin, Nairn, Ross and Cromarty, Caithness, Sutherland, and Orkney, and Shetland.

### REGULATIONS.

#### GENERAL CONDITIONS.

1. The Competition, except where otherwise stated in the *Programme List*, is open to Exhibitors from all parts of the United Kingdom.
2. Every Lot must be intimated by a Certificate of Entry, lodged with the Secretary *not later than Monday, 15th May, for Implements and other Articles, and Friday, 9th June, for Stock, Poultry, and Dairy Produce.*

No Entry taken at ordinary fees later than those which are received at the Society's Office by first post, or 10 o'clock, on Friday morning, 9th June. Post Entries for Cattle, Horses, Sheep, and Swine taken on payment of 10s. additional for each entry (Poultry and Dairy Produce at double fees) till Wednesday morning (14th June), at the Society's Office, Edinburgh, at 10 o'clock. Printed forms of Entry will be issued on application to the Secretary, No. 3 George IV. Bridge, Edinburgh. Admission Orders for Exhibits and Attendants will be forwarded to Exhibitors, by post, previous to the Show.

*Licences  
for moving  
Stock.*

3. This Premium List is published and the Show will be held subject to any Orders that may be issued by the Board of Agriculture or Local Authorities. Any licences that may be required for the movement of Stock into or away from the Show must be obtained by Exhibitors. For these licences, application should be made to the Chief Constable, Burgh Police Chambers, Inverness.

*Diseased  
Animals.*

4. Animals suffering from any form of infectious or contagious disease—including ringworm or other form of infectious or contagious skin ailment—must not be brought to the Show. Those infringing this Rule shall be liable to a fine of 40s., and to have their Stock removed.

5. No Entry can be received or recorded unless it is accompanied by the necessary fees, and complies fully with the Regulations in the Premium List.

*Particu-  
lars of  
Entries.*

6. The Schedule of Entry must be filled up so far as within the knowledge of the Exhibitor. The Society shall have power at any time to call upon an Exhibitor to furnish proof of the correctness of any statement in his entry.

7. The name of the Breeder, if known, must be given, and if the Breeder is not known, a declaration to that effect, signed by the Exhibitor, must be made on the Entry Schedule, and no pedigree will be entered in the Catalogue when the Breeder is unknown.

*No substitution  
of  
Animals.*

8. All animals, except calves, foals, and lambs shown with their dams, must be entered in the classes applicable to them, and cannot be withdrawn after entry, or other animals be substituted in their place.

*One Class  
only.*

9. For prizes given by the Society, no animal shall be allowed to compete in more than one class, or to compete in any class except that prescribed for animals of its pedigree and description; but this Rule does not apply to the Jumping and Driving Competitions.

*Ownership.*

10. All stock exhibited at the Show, except where otherwise stated in the Premium List, must be from the time of entry to the date of the competition the *bona fide* property of the Exhibitor in whose name it is entered.

*Responsi-  
bility for  
Entries.*

11. Exhibitors are alone responsible for the accuracy and eligibility of their entries. The recording of an entry or the admission of the exhibit to the Showyard will not relieve the Exhibitor of this responsibility. The entry-fee paid for an animal entered in a class for which it is not eligible is not returnable.

*Society not  
liable.*

12. The Society shall not be liable for any loss or damage which Stock, Poultry, Dairy Produce, Implements, or other articles may sustain at the Show, or in transit.

*Disquali-  
fied Ex-  
hibitors.*

13. The Society reserve to themselves the right of refusing, cancelling, or prohibiting the exhibition of entries from any person who, after 1st January 1904, has been expelled from the membership of any Agricultural or Dairy Society, or who may have been prohibited, suspended, or disqualified from making entries or exhibiting at the Show or Shows of any Agricultural or Dairy Society or Breed Society in consequence of having attempted to obtain a Prize by giving a false Certificate, or by other unfair means, or who is under exclusion from any Breed Society for fraudulent practices.

14. When an animal has previously been disqualified by the decision of any Agricultural Society in the United Kingdom, such disqualification shall attach, if the Exhibitor, being aware of the disqualification, fail to state it, and the grounds thereof, in his entry, to enable the Directors to judge of its validity. *Animal disqualified.*

15. Any artificial contrivance or device of any description found on or proved to have been used on an animal, either for preventing the flow of milk or for any other improper purpose, will disqualify that animal from being awarded a Premium, and the Owner of said animal may be prohibited from again entering Stock for any of the Society's General Shows, for such a period as the Directors may see fit. *Tampering with Animals.*

16. The Society further reserve to themselves the right of refusing any entries they may think fit to exclude, or to cancel any entry made, or to prohibit the exhibition of any entry. *Rejecting Entries.*

17. Stock entered for competition, and actually in the Show, is subject to the control and under the orders of the Stewards, Secretary, and other Show officials of the Society, and such stock may not be withdrawn from competition without the consent of the Stewards or Secretary. *Control of Exhibits.*

18. Persons making insulting remarks to, or in any way unduly interfering with, the Judges, Stewards, or other officials while in the performance of their duties, and all Exhibitors or others in charge of stock while in the judging rings refusing to accept or display tickets, rosettes, &c., awarded by the Judges, and handed to them by the Stewards or other officials, or tearing up tickets, rosettes, &c., so awarded and handed to them, or of any similar conduct, shall be considered guilty of misconduct, and shall be dealt with under these rules. *Improper Conduct.*

19. All persons in charge of stock or other exhibits, and all persons admitted into the Showyard, shall be subject to the rules of the Society, and shall obey the orders of the Stewards, Secretary, and other officials of the Society. Exhibitors shall be answerable for the conduct of their servants or representatives. *Subject to Orders.*

20. The Stewards and other officials have power to enforce the regulations of the Society in their different departments. *Power of Officials.*

21. A protest having reference to exhibits at the Show may be lodged by any person having interest. Protests having reference to competitions which take place on the first day of the Show must be lodged in writing with the Secretary at his Office in the Showyard not later than 9 A.M. on Wednesday, the second day of the Show, and parties must be in attendance at the Secretary's Office in the Showyard at 9.30 A.M. that day, when protests may be disposed of. Protests relating to competitions taking place after the first day of the Show must be lodged before 5 P.M. on the day on which the particular exhibition takes place. Each protest must state specifically the grounds of objection, and must be accompanied by a deposit of £2, 2s., which deposit may, if the objection be proved frivolous to the satisfaction of the Directors, be forfeited. Protests may be lodged at any time by Directors, and in this case no deposit will be required. Protests will be heard and determined by the Directors. Protests on veterinary grounds not received. *Protests.*

22. The violation of any one of the regulations, or disobedience of the orders of the Directors, Stewards, Secretary, or other officials of the Society, shall render the offending person liable to the forfeiture of all premiums awarded to him, or of such a portion as the Directors may ordain, and also liable to be expelled from the membership of the Society, and disqualified from again, or for a certain number of years, exhibiting at the Shows of the Society, or to have his case disposed of by fine or otherwise as the Directors may determine. *Penalties for Offences.*

23. The decision of the Directors shall, in every matter arising at or in connection with the Show, be final; and every person present at the Show, *Final Authority.*

whether as a Judge, Exhibitor, Visitor, or otherwise, shall be deemed thereby to have agreed to refer the subject-matter of such decision to the final determination of the Directors to the exclusion of all Courts of Law.

*Intimating  
Decisions.*

24. All decisions under these rules may, along with the names and addresses of the persons against whom such decisions have been pronounced, be communicated by the Secretary of this Society to the Secretaries of all Agricultural or Dairy Societies holding open Shows in the said United Kingdom, and to the Secretaries of all Breed Societies in said United Kingdom, and may be published in the Annual Reports of this Society, and in such newspapers or journals as the Directors may determine; and every Exhibitor competing at the Show, and every person present at the Show, whether as a Director, Member of Committee, Steward, Judge, Exhibitor, Visitor, or otherwise, shall be deemed thereby to have consented to such communication and publication.

*Former  
Winners.*

25. An animal to which a first Premium has been awarded, even if it should not qualify for that Premium, or an animal which subsequently becomes entitled to a first Premium, at a General Show of the Society, cannot again compete in the same class, notwithstanding any alteration in the heights stated for such class, but may be exhibited as Extra Stock.

*Herd-  
books.*

26. Shorthorn, Aberdeen-Angus, Galloway, and Highland cattle must be entered in the herd-books, or the Exhibitor must produce evidence that his animal is eligible to be entered therein.

*Height of  
Horses.*

27. All Horses or Ponies entered in classes in which a particular height is stated shall before being judged be measured with their shoes on. No subsequent measuring or alteration of shoes will be permitted.

*Overfeed-  
ing.*

28. Breeding Stock must not be shown in an improper state of fatness, and the Judges are requested not to award Premiums to overfed animals; and no Cattle or Sheep which after the age of twelve months have been exhibited as Fat Stock at any Show are eligible to compete in the Breeding Classes for the Society's Prizes.

*Sires.*

29. Aged Bulls and Stallions must have had produce, and, along with two-year-old Bulls, three-year-old Colts, and two-shear and aged Tupes, have served within the twelve months immediately preceding the Show.

*Cows.*

30. Except as may be otherwise specially provided in this Premium List, cows of all breeds (other than Ayrshire) must have had a calf within nine months previous to the Show, and when exhibited must be in milk. Cows of the Ayrshire breed must have had a calf within fifteen months previous to the Show. Animals of any age that have had a calf must be shown as Cows.

*In-calf  
Heifers.*

31. Two-year-old Heifers of the Shorthorn, Aberdeen-Angus, and Galloway breeds, two-year-old Yeld Ayrshire Heifers, and three-year-old Highland Heifers, must be in calf when exhibited, and the Premiums will be withheld till birth be certified, which must be within 9 months after the Show.

*Mares.*

32. A Mare entered in a class for "Mares with foal at foot" must have produced a foal after 1st January of the year of the Show, must have regularly nursed her own or another foal, and must have the foal with her in the Show. If the mare's own foal is alive it must be the foal shown with the mare. In the case of a Mare that has not foaled before the Show, or whose foal has died, she shall, if not in milk, be eligible without further entry to compete among the Yeld Mares if a corresponding class for Yeld Mares be included in the Premium List. Agricultural Yeld Mares must produce a foal within 12 months from the first day of the Show. A Mare in a class for "Mares or Geldings" may or may not have had a foal in the year of the Show, but shall not have her foal exhibited with her, nor be in milk at the time of the Show.

*Sows.*

33. All Sows farrowed prior to the year before the Show must have produced a litter of pigs in the year of the Show before the opening

day. Sows farrowed in the year prior to the year of the Show must either have produced a litter of pigs before the Show, or produce a litter within three months of the last day of the Show. Certificates of the date of farrowing must be supplied in every case.

34. With reference to Regulation 31, birth of a live or full-time calf must be certified; and in regard to Regulation 32, birth of at least a nine months' foal; or in the case of the death of the dam, a Veterinary Surgeon's certificate must be produced certifying that at the time of death the animal was so far advanced with calf or foal that if it had lived it would have produced a calf or foal within the periods stated in Rules 31 and 32. Certificates of calving required by the foregoing Regulations must reach the office of the Secretary within ten months, farrowing certificates within four months, and foaling certificates within thirteen months, of the last day of the Show. In default of this, the animal will be regarded as having failed to fulfil the Regulations, and the prize will therefore pass to the animal next in order of merit or be forfeited.

*Calves and Foals.*

*Calving, Farrowing and Foaling Certificates.*

35. Except when otherwise provided, the awards of Special Prizes shall not be subject to the Regulations as to calving and foaling.

*Special Prizes.*

36. The Premiums awarded, except those withheld till birth of calf or foal or litter of pigs is certified, will be paid as soon after the Show as practicable, and, with the exception of the Tweeddale Gold Medal, Special Cups, and Medals, may be taken either in money or in plate.

*Payment of Prizes.*

37. In the classes for Hunters, Judges are empowered to transfer to the proper classes horses which, in regard to weight-carrying, are in their opinion entered in the wrong classes.

*Hunters.*

38. Judges are particularly requested to satisfy themselves, as far as possible, regarding the soundness of all Horses before awarding the Prizes, and to avoid giving Prizes to animals showing symptoms of hereditary diseases. The Judges may consult the Society's Veterinary Surgeon if they deem it expedient. No protests on veterinary grounds will be received.

*Soundness of Horses.*

39. All Ewes must have reared lambs in the year of the Show; and Ewes of the Blackface and Cheviot breeds must be in milk, and have their lambs at foot.

*Ewes.*

40. Sheep must have been clipped bare after the first day of the November preceding the Show, no part of the animal to be clipped prior to that date—this Rule not to apply to Cheviot Sheep.

*Clipping.*

41. In Poultry the Aged Birds must have been hatched previous to, and Cockerels and Pullets in, the year of the Show.

*Poultry.*

42. Railway Certificates for Stock and Implements are issued to Exhibitors before the Show along with their Tickets of Admission, one Certificate for the outward and another for the return journey being sufficient for each Exhibitor for any number of exhibits.

*Railway Passes.*

43. Poultry and Stock will be admitted on Monday, the day before the opening of the Show, and, with the exception of Horses, must be in the Yard before 12 o'clock that night. Horses must be in before 8 o'clock on the morning of Tuesday, except those entered in classes for which other times for arrival are elsewhere stated in this List. Judging begins at 9.30 A.M. on Tuesday. Exhibited on Tuesday, Wednesday, Thursday and Friday. Stock may be admitted on the Saturday preceding the Show, but only by sending two days' prior notice to the Secretary.

*Admission of Stock.*

44. Horses and Cattle must be paraded at the times stated in the Programme of the Show, and when required by the Stewards, and under their direction. In Parade, Horses must be ridden or led as provided in their respective classes. Prize and commended Cattle and Horses will receive two rosettes each, which must be attached to the head of the animal, one on each side. Attendants must be beside the animals during the parade.



*before the hour of Parade*, and be ready to proceed to the ring immediately on receiving the order of the Stewards. Infringement of this Rule, or failure of any attendant to obey the orders of the Society's officials, will render the Exhibitor liable to a fine of 20s. for each separate infringement or act of disobedience, and to the forfeiture of any or all of the Prizes awarded to him at this Show.

*Responsibility of Exhibitors.*

45. Exhibitors shall be answerable for all acts, whether committed by themselves, their servants, or others in charge of their Stock, and shall be responsible for the condition of their animals during the whole time they remain in the Showyard.

*Moving from stalls.*

46. No animal shall be taken out of its stall after 10 A.M. during the Show except by order of the Stewards, or with permission of the Secretary.

*Washing Cattle.*

47. Cattle shall not be taken out of their stalls to be washed after the Judging has been commenced. Cattle must not be washed beside the Judging Rings. Those infringing this Rule shall be liable to a fine of 10s.

*Soaping prohibited.*

48. Soap or other adhesive material must not be used in dressing cattle or horses. Infringement of this Rule will render the animal upon which the material is used liable to be disqualified.

*Accommodation.*

49. Loose-boxes will be provided for all horses; covered accommodation for other live stock. Boxes (floored) for attendants on Cattle, Horses, Sheep, and Pigs will be provided at a charge of 20s. for each box for members; 25s. for non-members.

*Floored boxes and stalls for Animals.*

50. Exhibitors requiring the boxes, stalls, or pens for their animals to be floored must give instructions to the Showyard contractors, Messrs Macandrew & Co., Showyard, ten days before the Show opens. (For charges, see Rule 73.)

*Securing Cattle.*

51. Bulls must be secured by nose-rings, with chains or ropes attached, or with strong halters and double ropes. All Cattle, other than Highland Cattle, must be tied in their stalls.

*Concealing Animals.*

52. During the time the Show is open to the public no rug shall be hung up so as to conceal any animal in a horse-box or stall, except with the special permission of the Steward of that department.

*Fodder.*

53. Five days' supply of straw, hay, grass, and tares will be provided free by the Society. Any additional fodder or other kinds of food required will be supplied at fixed prices in the Forage-yard. Any servant removing bedding from an adjoining stall will be fined in double the amount taken. Exhibitors may fetch their own cake or corn to the Yard, but not grass, tares, hay, or straw. Coops, food, and attendance for Poultry will be provided by the Society.

*Feeding appliances.*

54. Servants in charge of Stock must bring their own buckets or pails, and a piece of rope or sheep-net to carry their forage. Mangers, sheep and pig troughs, will be provided.

*Sawdust. Water.*

55. Sawdust must not be used as bedding for Stock.

56. As the command of water in the Yard is limited, it is particularly requested that waste be avoided.

*Lights and Smoking.*

57. No lights allowed in the Yard at night, and Smoking is strictly prohibited within the Sheds. Those infringing this Rule shall be liable to a fine of 10s.

*Removal of stock.*

58. Cattle, Sheep, Swine, or Poultry cannot be removed from the Yard till 5 P.M. on Friday, the last day of the Show, except on certificate by the Veterinary Surgeon employed by the Directors, countersigned by the Steward of the department or the Secretary.

*Withdrawal of horses over night.*

59. At the close of the Show on Tuesday, Wednesday, and Thursday, horses may be withdrawn for the night on a deposit of £5 for each animal, which shall be forfeited, along with any prize money it may have gained, if the animal is not brought back. They must return between 7 and 7.30 the following morning, and those not in before 8 shall forfeit 10s. Horse passes to be applied for at the Secretary's

Office between 5 and 6 p.m. on Tuesday, and the deposit, unless forfeited in whole or in part, will be returned between 12.30 and 2.30 on Friday.

60. When the Stock is leaving the Yard, no animal is to be moved till ordered by those in charge of clearing the Yard. Those transgressing this Rule shall be liable to a fine of 10s., and to be detained till all the other Stock is removed. *Order in removal.*

61. Poultry may be penned before the opening and removed at the close of the Show by Exhibitors themselves or their representatives. In the event of neither the Exhibitor nor an authorised representative of the Exhibitor being present to pen or remove Poultry, the birds will be penned and removed by men hired and paid by the Society, but this will be done on the understanding that the men are hired to do the work on behalf of Exhibitors, and solely at their risk, and that the Society will be in no way responsible for expenses incurred or loss of or injury to Exhibits by errors or accidents in penning, despatching, or conveying Exhibits. *Penning and removing Poultry.*

62. On the opening day of the Show the Poultry Shed will be closed to the public during the Judging. On the last day of the Show the Poultry Shed will be closed to the public at 4 p.m.; at 5 p.m. Exhibitors or their representatives will be admitted to the Shed to remove Exhibits, provided the Exhibitor has, *not later than 11 a.m. on the last day of the Show*, given written notice to the Secretary to the effect that the Exhibitor or the Exhibitor's representative will attend at the Poultry Shed at 5 p.m. to remove the birds. *Closing of Poultry Shed.*

## JUDGING STOCK AND POULTRY.

63. On Tuesday, the first day of the Show, no person will be admitted, except Servants in charge of Stock, till 8 a.m., when the Gates are opened to the public. *Opening Gates.*

64. The Judges will commence their inspection at 9.30 a.m. The spaces reserved for the Judging will be enclosed, and no encroachment shall be permitted. *Judging.*

65. In no case shall a Premium be awarded unless the Judges deem the animals to have sufficient merit; and where only one or two lots are presented in a section, and the Judges consider them unworthy of the Premiums offered, it shall be in their power to award a lower prize. *Insufficient merit.*

66. In addition to the Premiums, the Judges may award one Very Highly Commended, one Highly Commended, and as many Commended tickets in each class as they consider justified by the number and merit of the entries. *Commendations.*

67. Ayrshire Cows which have not calved before the Show, whether entered in a class for Cows in Milk or for Cows in Calf, shall be judged along with the Cows in Calf, and Ayrshire Cows or Heifers which have calved before the Show—in whichever of the classes entered—shall be judged along with Cows in Milk. *Ayrshire Cows and Heifers.*

68. Attending Members will accompany each section of the Judges. It will be the duty of Attending Members to bring the animals out to the Judges and to see that no obstruction is offered to them, and that the space reserved for them is not encroached upon; to ticket the prize animals; to send the Nos. of prize animals to the Award Listers at the Members' Pavilion; to assist the Judges in completing their awards; and should any difficulty arise, to communicate with the Stewards or Secretary. *Attending Members.*

69. It shall not be competent for any Exhibitor, nor for his Factor or Land-Steward, to act as a Judge or attending Member in any class in which he is competing.

## DAIRY PRODUCE.

70. Dairy Produce will be received in the Showyard on Monday, the day before the opening of the Show, and till 8 A.M. on Tuesday, the first day of the Show. Judged at 9.30 A.M. on Tuesday. Exhibited Tuesday, Wednesday, Thursday, and Friday.

*Placing  
and re-  
moving  
Dairy  
Produce.*

71. Dairy Produce must have been made on the Exhibitor's farm in the year of the Show. No Exhibitor shall show more than one lot in each class. Exhibits of Dairy Produce may be placed before the opening and removed at the close of the Show by Exhibitors themselves or their representatives. In the event of neither the Exhibitor nor a person with written authority from the Exhibitor being present to place or remove exhibits, they will be placed and removed by men hired and paid by the Society, but this will be done on the understanding that the men are hired to do the work on behalf of Exhibitors, and solely at their risk, and that the Society will be in no way responsible for expenses incurred or loss of or injury to exhibits by errors or accidents in placing, despatching, or conveying exhibits. In the case of exhibits which are not removed by 5.30 P.M. on the closing day of the Show, the Society will hold itself at liberty to hand them over to the railway companies for despatch to the respective Exhibitors.

## STALL RENT (INCLUDING ENTRY FEE).

*Stall Rent.*

72. The Stall Rents (which include Entry Fees) as stated opposite the individual Classes in this List, shall be paid by Exhibitors when making their Entries.

*Floored  
Stalls.*

73. Exhibitors desiring the boxes, stalls, or pens for their animals to be floored can have this done by giving instructions, ten days before the opening of the Show, to the contractors, Messrs Macandrew & Co., the Showyard, to whom the following charges for flooring have to be paid: Horses, 10s. each; Ponies, Cattle, Sheep, and Swine, 7s. each.

## ACCOMMODATION FOR ATTENDANTS.

74. Boxes for accommodation of attendants on Stock will, if desired, be provided beside the Stock at a charge of 20s. per box for members and 25s. for non-members. Attendants' boxes will be floored and lined with wood, with door. Applications for attendants' boxes must accompany entries of Stock, and Exhibitors must state next to which animal the attendants' box is to be placed.

## IMPLEMENTS AND OTHER ARTICLES.

*Admission.*

75. Implements will be received in the Yard from Tuesday, 18th July, till 5 o'clock on the afternoon of Monday, 24th July. Exhibited Tuesday, Wednesday, Thursday, and Friday. The Schedule of Entry must be filled up so far as within the knowledge of the Exhibitor, and prices must be stated.

*Premiums.*

76. No Money Prizes or Medals, except when specially offered, will be given by the Society for Implements of any kind.

*Refusing  
Entries.*

77. Agricultural Implements, and Implements and collections of articles not Agricultural, will be received for Exhibition, but the Secretary is entitled to refuse Entries from dealers in articles not deemed worthy of Exhibition.

78. In order to encourage exhibits of Agricultural Implements from operative Blacksmiths and Carpenters in the district of the Show, open space will be provided for these in some less prominent part of the Yard at a charge of 10s. for space 10 feet wide and 20 feet deep. *Local Operatives.*

79. Every article to be exhibited must be entered on the Society's Entry Form. Any article not so entered that is taken to the Show is liable to be ordered out of, or removed from, the Showyard, or confiscated to the Society. Exhibitors infringing this rule are moreover liable to a fine of £1. *Articles not entered.*

80. "Cheap-Jacks" are not admitted to the Showyard. The selling of goods by auction, shouting, and other behaviour calculated to annoy visitors or Exhibitors, are strictly forbidden. Exhibitors infringing this Regulation are liable to a fine of £1, and to have themselves and their goods ordered out of, or removed from, the Showyard, or to have their goods confiscated to the Society. *Selling by auction and noisy behaviour forbidden.*

81. The articles of each Exhibitor must be all placed in one stand, except Implements in motion, and must not on any account extend beyond the allotted space. No article shall be moved out of its stand, or the stand dismantled, till the termination of the Show, at 5 P.M. on Friday. Those infringing this Rule shall be liable to a fine of 10s. *Placing Exhibits. Removing Exhibits.*

82. When the ground requires to be broken, the turf must be carefully lifted and laid aside, and the surface must be restored to the satisfaction of the Society, and at the expense of the Exhibitor. Failing this being done, the Society shall be at liberty to restore the ground and charge the cost to the Exhibitor. *Restoring Turf.*

83. Exhibitors must arrange their own articles within the space allotted to them before 9 o'clock on Tuesday, and to the satisfaction of the Stewards in charge of the Implement Yard. Exhibitors are prohibited from subletting space allotted to them, and from displaying the name of any other firm on their Stand. All signs, except signs on gables, must face the front only. Nails must not be driven into the canvas. *Arranging Exhibits. Signs.*

84. Exhibitors are not allowed to distribute handbills anywhere in the Yard except at their own Stand; and they must not for this or any other purpose encroach upon the adjacent alleys or open spaces. *Handbills.*

85. Exhibitors are required to have their Stands and the portions of the alleys immediately adjoining them swept up before eight o'clock on each morning of the Show. *Sweeping Stands, &c.*

86. All Machines requiring steam or fire must be entered as such in the Certificate, and will be placed in the Motion Yard. *Coke only shall be used in all cases where fire is required.* Coal shall not be used at any time in the Showyard. Those infringing this Rule shall incur a penalty of £5. *Fuel.*

87. No Steam Engine shall be driven in the Yard at a greater speed than 4 miles an hour. Traction Engines shall not be used in conveying Exhibits or other goods into, from one place to another in, or out of the Showyard. Without written permission by the Steward of Implements or Secretary, Motor Waggon shall not be used in conveying goods into or out of the Showyard. *Steam Engines. Motors.*

88. Locomotive and Traction Engines and other Machines must not be moved from their places without permission of the Secretary or Stewards, and must not leave their stands till 6 P.M. on Friday. *Traction Engines.*

89. There must be attached to each Implement, when forwarded to the Show, a label bearing the Exhibitor's name, and that of the Implement, as well as the number of the Exhibitor's stand. *Exhibitors.*

90. The carriage of all Implements must be prepaid.

91. Photographing in the Showyard is not permitted, except by those photographers having a Stand in the Showyard or holding a "Photographer's Ticket." The "Photographer's Ticket" may be had from the Secretary, price 15s. It admits the holder to the Show, and to the public and

entitles him to photograph in the Showyard, subject to arrangements made by the Stewards.

*Covered Booths.*

92. Covered Booths for Offices (9 feet by 9 feet), purely for business, not for exhibition of goods, can be had for £3, 10s. to Members and £5 to Non-Members.

*Exhibitors' and Attendants' Tickets.*

93. Each Exhibitor in the Implement Department who is not a Member of the Society will receive one free Ticket of Admission to the Showyard for himself or a member of his firm, and will receive, in addition, for the use of attendants employed by him at his Stand, two Tickets of Admission for each complete ten feet of shedding in the Motion Yard, and one Ticket for each complete ten feet of shedding in the other sections. No additional Free Tickets can be issued in any circumstances whatever. Additional Attendants' Tickets, not more than five for one Exhibitor, may be obtained by application in writing by the Exhibitor at 5s. each.

*Tickets to be filled up and signed.*

94. The Tickets of Admission for Exhibitors and Attendants referred to in the foregoing Regulation will (about fourteen days prior to the Show) be issued to the Exhibitors in blank, with the number of the Exhibitor's Stand. The name of the person for whom each ticket is intended must be written on it before it is used. Each person holding a Free Ticket of Admission must sign his or her name on the back thereof, and must also, when required, sign his or her name in the book at the Entrance Gate. Exhibitors' attendants are strictly cautioned not to lend or transfer their Tickets, which can be used only by the persons whose names they bear, and who must be *bona fide* acting for, or employed by, the Exhibitor. No Ticket is transferable. An Exhibitor is liable to a fine of £1 for each case of transfer or other improper use of a Ticket issued to himself or employee.

*Tickets not Transferable. Improper use of Tickets. Admission of Supplies for Stand-holders.*

95. The following are the arrangements for the admission of Supplies (Refreshments or other goods) for Stand-holders during the Show: Messenger on foot (with or without hand-barrow) with supplies, admitted by Special Ticket; price for one admission, 1s., for the four days, 3s. Horse vehicle and driver with supplies, admitted by Special Ticket; price for one admission, 1s., for the four days, 5s. These Special Tickets may be had from the Secretary. Horse vehicles, with supplies, admitted throughout the day on the first day of the Show; on the other three days they will not be admitted between the hours of 10 A.M. and 5 P.M. except by written permit from the Secretary.

*Cycles.*

96. The riding of Cycles in the Showyard is prohibited.

*Allocation of space.*

97. The Society reserves the right to allot to applicants for Stands either the whole or part of the space they ask for.

*Accidents.*

98. The Society will not be responsible for any accident that may occur from the machinery belonging to any Exhibitor; and it is a condition of entry that each Exhibitor shall hold the Society harmless, and indemnify it against any legal proceedings arising from any accident caused by his machinery.

*Alcoholic Drinks.*

99. The giving of Alcoholic Drinks to visitors at Stands in the Show is strictly prohibited.

*Gas.*

100. Exhibitors desiring the use of gas in the Showyard should apply to the Manager of the Corporation Gas Works, Inverness, not later than 1st June.

#### STALL RENT.

101. Ground to be taken in spaces of 10 feet frontage by 20 feet deep, except in Motion Yard, which is to be 10 feet or larger amount of frontage by 50 feet deep. Exhibitors must take their space in one or other of the following Sections. Space is not let partly covered and partly open. Exhibits not in motion may be excluded from the Motion Yard. The space in the Motion Yard being limited in extent, and

intended mainly for exhibits in motion, not more than one-fifth of the space allotted to any one Exhibitor—and in no case more than 400 square feet—may be occupied in the Motion Yard by exhibits not in motion.

102. The maximum extent of space which any one Exhibitor may apply for shall be 40 feet of frontage in the Motion Yard, and 100 feet of *Maximum Space.* frontage in the other Sections.

103. Rates for space, payable by Exhibitors when making their Entries :—

	Members.	Non-Members.
1. Space without Shedding, 20 ft. deep, per 10 ft. . .	£1 5 0	£1 15 0
2. Special Space, without Shedding, 20 ft. deep, per 10 ft. . .	2 0 0	2 10 0
3. Ordinary Shedding, 20 ft. deep, 7 ft. to eave, per 10 ft. . .	1 5 0	1 15 0
4. Ordinary Shedding, 20 ft. deep, 7 ft. to eave, <i>close boarded at back</i> , per 10 ft. . .	1 12 0	2 2 0
5. Special Shedding, 20 ft. deep, 7 ft. to eave, per 10 ft. . .	2 0 0	2 10 0
6. Special Shedding, 20 ft. deep, 7 ft. to eave, <i>close boarded at back</i> , per 10 ft. . .	2 7 0	2 17 0
7. *Motion Yard, without Shedding, 50 ft. deep, per foot . . .	0 5 0	0 8 0
8. *Motion Yard, with Shedding (10 ft. open behind, 20 ft. covered, and 20 ft. <i>open in front</i> ), 11 ft. to eave, per foot . . .	0 7 0	0 10 0
9. Covered Booths for offices, 9 ft. by 9 ft., each . . .	3 10 0	5 0 0
10. Newspaper offices, 9 ft. by 9 ft., each . . .	£2, 10s.	

\* See Rules 101 and 102.

### ADMISSION OF THE PUBLIC.

The public will be admitted daily at 8 A.M. Judging begins on Tuesday at 9.30 A.M. The charges for admission to the Yard will be—Tuesday, from 8 A.M. till 5 P.M., 5s. Wednesday, from 8 A.M. till 5 P.M., 3s. Thursday, from 8 A.M. till 5 P.M., 2s. Friday, from 8 A.M. till 5 P.M., 1s.

### ADMISSION OF MEMBERS AND EXHIBITORS.

On exhibiting their "*Member's Ticket*," which is strictly not transferable, Members of the Society are admitted free to the Showyard and (provided there is room) to the Enclosures and Stands around the Large Ring, excepting the Reserved Seats in the Grand Stand, and such other parts as may be specially reserved. Tickets will be sent to all Members residing in the United Kingdom whose addresses are known, and on no account will duplicates be issued. All Members not producing their tickets must pay at the gates, and the admission money will not on any account be returned. Tickets must be signed by Members before being presented at the gate.

Tickets of admission to the Showyard are sent to Exhibitors of Stock, Poultry, and Dairy Produce (not Members) whose Entry Fees amount to not less than 10s.

For Exhibitors of Implements and their assistants tickets are issued as provided in the Regulations for Implements.

### RESERVED SEATS IN GRAND STAND.

*For Charges and Tickets, apply to Secretary.*

### VARIOUS.

Exhibitors may display their own Placards *inside and in front of* their stands; with this exception, no Bills of any kind other than those of the Society are permitted on any of the Show erections. No newspapers or any other article to be carried about the Yard for sale or display.

*No Carriages or Equestrians admitted without special leave from the Directors, and then only for Invalids. Bath-chairs may be brought in.*

Premium Lists, Regulations, and Certificates of Entry may be obtained by applying at the Secretary's Office, No. 3 George IV. Bridge, Edinburgh.

*All Communications should be addressed to JAMES MACDONALD, Esq., Secretary of the Highland and Agricultural Society of Scotland, No. 3 George IV. Bridge, Edinburgh. From 19th to 27th July, to the Secretary's Office, Showyard, Inverness.*

*Address for Telegrams—"SOCIETY," EDINBURGH.*

### LAST DAYS OF ENTRY.

**IMPLEMENTS AND OTHER ARTICLES**—Monday, 15th May.

**STOCK, POULTRY, AND DAIRY PRODUCE**—Friday, 9th June.

No Entry at ordinary fees taken later than those which are received at the Society's Office, Edinburgh, by first post, or 10 o'clock, on Friday morning (9th June). Post Entries for Cattle, Horses, Sheep, and Swine taken on payment of 10s. additional for each entry (Poultry and Dairy Produce at double fees) till Wednesday morning (14th June), at the Society's Office, Edinburgh, at 10 o'clock.

### RAILWAY ARRANGEMENTS.

The Railway Companies will be furnished with a list of the Exhibitors of Stock and Implements, after the 30th June. All applications for horse-boxes and trucks, and for information as to arrangements of Special Trains, must be made by the Exhibitors themselves to the Stationmaster where their stock is to be trucked.

*The arrangements made by the Railway Companies for the conveyance of Live Stock and Goods to and from the Show are indicated below, but exhibitors are recommended to apply to the respective companies for full particulars:—*

1. Live Stock and Goods to the Show to be charged ordinary rates.
2. Live Stock and Goods from the Show, if sold, to be charged ordinary rates.
3. Live Stock and Goods from the Show, if unsold and returned not later than the second day after the closing day of the Show (Sunday to be treated as a *dies non*), to be carried at half rates back to the station whence they were sent, at owners' risk, on surrender of a certificate from the Exhibitor to the effect that they are really unsold; failing surrender of such certificate, ordinary rates must be charged. The reduction to half rate is to be allowed only when the animals or goods are consigned to be returned by the same route as that by which they were conveyed to the Show, but it shall be in the option of the Railway Company or Companies to return the animals or goods at half rates by a different route owned by the same Railway or Railways over which the consignment was carried on the outward journey. The minimum charge for Stock returned at half rates will be one-half the ordinary minimum.

*If the unsold Live Stock which was carried on the outward journey by Passenger Train in horse-boxes be required to be returned by Goods Train in cattle trucks, half the Goods Train rates must be charged.*

*If the unsold Live Stock which was carried on the outward journey by Goods Train in cattle trucks be required to be returned by Passenger Train in horse-boxes, half the Passenger Train rates must be charged.*

4. Horses and Cattle, when sent for exhibition from one Agricultural Show to another, in another part of the country, are charged the ordinary single rates in respect of each journey, from point to point, up to the last station to which they are sent for exhibition. If remaining unsold when returned from the latest Show to the originating or home station, they are—on surrender of the necessary certificates—charged half rates at owners' risk, provided such return journey is made by the line of the company by whose route it was conveyed on the outward journey, and provided the railway traversed was covered on the outward journey. If conveyed by Goods Train, unsold Live Stock transferred

from one Agricultural Show to another in another part of the country must be charged ordinary rates up to the latest Show, from which they will be returned to the original forwarding station at half rates at owners' risk, as above.

5. Unsold goods, previously carried by railway, transferred from one Agricultural Show to another, in another part of the country, or exhibited at several Shows consecutively, and returned to the station from whence originally sent, will be conveyed at half rates at owners' risk, on production of certificate from the Exhibitor to the effect that they are unsold; failing production of such certificate, ordinary rates will be charged. This applies only to Goods Trains.

6. Poultry to be charged ordinary rates both ways, and will not be accepted for conveyance unless the carriage charges are prepaid.

7. Horse-boxes, or other Passenger Train vehicle, will not be provided for the carriage of Live Stock sent by Goods Train and invoiced at Goods Train rates. *For rates for Horse-boxes by Passenger and Special Trains, apply to the Railway Companies.*

8. Provender conveyed to Agricultural Shows with Live Stock will be charged ordinary rates, except so much of the same as may be required on the journey.

9. Men, certified by the owners to be *bona fide* in charge of Live Stock, to be conveyed free in the same train as the animals, as follows: One man for each consignment, except where the consignment requires more than one vehicle, when one man for each vehicle may be sent free; but no pass is given unless the charge for each vehicle or consignment amounts to as much as the charge for one horse or one animal in specially constructed Cattle Trucks. When two or three horses forming one consignment are sent in the same horse-box, and a man is required to travel with each animal, the men may be conveyed free, provided each horse is charged at the single horse rate. Upon both the outward and homeward journeys a separate certificate and contract must be given, which must be retained by the stationmaster at the outward or homeward starting-point, as the case may be.

10. The ordinary rates charged for carriage do not in any case include delivery to, or collection from, the Show ground.

11. Agricultural Societies' Show Plant must be charged at Class C rates, station to station.

12. Tents, Canvas, and other articles, not for exhibition, to be charged the ordinary rates both going and returning.

13. The carriage of all Live Stock, Implements, and other articles going to the Show for exhibition must be *prepaid*.

## DELIVERY AND COLLECTION CHARGES.

The following will be the Charges for the Delivery or Collection of Live Stock, Implements, and other articles between the Railway Station at Inverness and the Show ground:—

1. General traffic, 2s. 6d. per ton (minimum charge, 1s. 6d.)
2. Implements and Machinery (Agricultural), not exceeding 1 ton each, 2s. 6d. per ton (minimum charge, 2s.)
3. Implements and Machinery (Agricultural), on their own wheels (specially hauled), not exceeding 1 ton, 3s. each.
4. Single articles, exceeding 1 ton but not exceeding 3 tons, 3s. per ton.
5. Single articles, exceeding 3 tons but not exceeding 5 tons, 6s. per ton.
6. Single articles, exceeding 5 tons, by special arrangement only, but no less charge than 8s. per ton.
7. Rustic Houses, by special arrangement only, but no less charge than 7s. 6d.
8. Carriages, four-wheeled, 3s. each.
9. Carriages, two-wheeled, 2s. each.
10. Cattle, in floats, 3s. 6d. per head; minimum charge, 5s.
11. Sheep and Pigs, in floats, 1s. per head (minimum charge, 5s. and maximum charge, 7s. 6d. for each float).
12. Parcels or Hampers by Passenger Train, 3d. each; minimum charge, 6d.; 5s. per load.



## THE PRESIDENT'S CHAMPION MEDALS

A Champion Medal is given by The Right Hon. LORD LOVAT, President of the Society, for the best *Animal or pen* in each of the following sections:—

- |                    |                                  |                      |                       |
|--------------------|----------------------------------|----------------------|-----------------------|
| 1. Shorthorn.      | 7. Clydesdale Stallions.         | 12. Ponies.          | 18. Border Leicester. |
| 2. Aberdeen-Angus. | 8. Draught Geldings.             | 13. Highland Ponies. | 19. Half-bred.        |
| 3. Galloway.       | 9. Clydesdale Mares and Fillies. | 14. Shetland Ponies. | 20. Shropshire.       |
| 4. Highland.       |                                  | 15. Harness Horses.  | 21. Oxford-Down.      |
| 5. Ayrshire.       | 10. Hunters.                     | 16. Blackface Sheep. | 22. Suffolk.          |
| 6. Fat Cattle.     | 11. Hackneys.                    | 17. Cheviot.         | 23. Swine.            |

NOTE.—Animals entered as *Extra Stock* may compete for these Medals. Former Winners of the President's Medals are eligible. The Society shall have the right to photograph the Winners for publication in the 'Transactions.' At this Show no animal can be awarded more than one of these Medals.

ENTRY FEES		CLASS	CATTLE	PREMIUMS		
Members	Non-Members			First	Second	Third
<b>SHORTHORN</b>						
<i>President's Medal for best Shorthorn</i>						
15/-	25/-	1	Bull calved before 1909	15	10	5
15/-	25/-	2	Bull calved in 1909	15	10	5
15/-	25/-	3	Bull calved in 1910	12	8	4
Tweeddale Gold Medal for best Shorthorn Bull.						
<sup>1</sup> Best Shorthorn Bull in the Show, entered or eligible for entry in Coates's Herd-Book—£20.						
Breeder of best Bull of any age in the three Classes—The Silver Medal.						
15/-	25/-	4	Cow of any age in Milk	12	8	4
15/-	25/-	5	Heifer calved in 1909.	10	5	3
15/-	25/-	6	Heifer calved in 1910.	10	5	3
<sup>1</sup> Best Shorthorn Female in the Show, entered or eligible for entry in Coates's Herd-Book—£20.						
TOTAL PRIZE MONEY				£158		
<b><sup>2</sup> ABERDEEN-ANGUS</b>						
<i>President's Medal for best Aberdeen-Angus Animal</i>						
15/-	25/-	7	Bull calved before 1st Dec. 1908	15	10	5
15/-	25/-	8	Bull calved on or after 1st Dec. 1908	15	10	5
15/-	25/-	9	Bull calved on or after 1st Dec. 1909	12	8	4
<sup>2</sup> Ballindalloch Challenge Cup, value £50, for the best Bull in the three Classes.						
Breeder of best Bull of any age in the three Classes—The Silver Medal.						
Breeder of the Winner of the Ballindalloch Challenge Cup—The Silver Medal.						
15/-	25/-	10	Cow of any age in Milk	12	8	4
<sup>2</sup> Ballindalloch Challenge Cup, value £50, for the best Cow of any age in the above Class.						

<sup>1</sup> Given by the Shorthorn Society.

<sup>2</sup> "The Ballindalloch Challenge Cups," value £50 each, are offered for the best Bull of any age and best Cow of any age (Heifers excluded) in the Aberdeen-Angus classes, the former presented by the late Sir George Macpherson Grant, Bart., and the latter by the late Mr C. Macpherson Grant of Drumduan. Each Cup will become the property of the Exhibitor who shall win it five times, not necessarily in succession. The breeder of the successful animals each year will receive the Society's Silver Medal, with suitable inscription.

ENTRY FEES			CLASS	CATTLE	PREMIUMS			
Members	Non-Members				First	Second	Third	Fourth
<b>ABERDEEN-ANGUS—continued</b>								
				Breeder of the Winner of the Ballindalloch Challenge Cup—The Silver Medal.				
15/-	25/-	11		Heifer calved on or after 1st Dec. 1908 . . . .	10	5	3	2
15/-	25/-	12		Heifer calved on or after 1st Dec. 1909 . . . .	10	5	3	2
				<sup>1</sup> Champion Gold Medal, value £10, for best animal in the breeding Classes, breeding animals shown as "Extra Stock" being eligible to compete.				
				TOTAL PRIZE MONEY . . . .				£158
<b>GALLOWAY</b>								
<i>President's Medal for best Galloway</i>								
15/-	25/-	13		Bull calved before 1st Dec. 1908 . . . .	15	10	5	3
15/-	25/-	14		Bull calved on or after 1st Dec. 1908 . . . .	15	10	5	3
15/-	25/-	15		Bull calved on or after 1st Dec. 1909 . . . .	12	8	4	2
				Breeder of best Bull of any age in the three Classes—The Silver Medal.				
15/-	25/-	16		Cow of any age in Milk . . . .	12	8	4	2
15/-	25/-	17		Heifer calved on or after 1st Dec. 1908 . . . .	10	5	3	2
15/-	25/-	18		Heifer calved on or after 1st Dec. 1909 . . . .	10	5	3	2
				TOTAL PRIZE MONEY . . . .				£158
<b>HIGHLAND</b>								
<i>President's Medal for best Highland Animal</i>								
15/-	25/-	19		Bull calved before 1909 . . . .	15	10	5	3
15/-	25/-	20		Bull calved in 1909 . . . .	15	10	5	3
15/-	25/-	21		Bull calved in 1910 . . . .	12	8	4	2
				Breeder of best Bull of any age in the three Classes—The Silver Medal.				
15/-	25/-	22		Cow of any age in Milk . . . .	12	8	4	2
15/-	25/-	23		Heifer calved in 1908 . . . .	10	5	3	2
15/-	25/-	24		Heifer calved in 1909 . . . .	10	5	3	2
				TOTAL PRIZE MONEY . . . .				£158
<b>AYRSHIRE</b>								
<i>President's Medal for best Ayrshire</i>								
15/-	25/-	25		Bull calved before 1909 . . . .	15	10	5	3
15/-	25/-	26		Bull calved in 1909 . . . .	10	5	3	2
15/-	25/-	27		Bull calved in 1910 . . . .	10	5	3	2
				<sup>2</sup> Special Prize of £10 for the best Male Animal of the Ayrshire breed entered with a number in the Ayrshire Cattle Herd-Book not later than 1st Jan. 1911.				

Given by the Aberdeen Angus Cattle Society

2 Given by the Ayrshire Cattle Breeders' Association.

ENTRY FEES			CLASS	CATTLE	PREMIUMS			
Members	Non-Members	First			Second	Third	Fourth	
					£	£	£	£
AYRSHIRE—continued								
Breeder of best Bull of any age in the three Classes—The Silver Medal.								
25/-	35/-	28	1	Cow calved before 1908 in Milk	12	8	4	—
25/-	35/-	29	1	Cow of any age in Calf, or Heifer calved in 1908 in Calf and due to calve within nine months after the Show	10	7	3	—
25/-	35/-	30		Heifer calved in 1909, in calf and due to calve not sooner than 1st September nor later than 31st December 1911	10	7	3	—
15/-	25/-	31		Heifer calved in 1909	10	5	3	—
15/-	25/-	32		Heifer calved in 1910	8	5	3	—
2 Special Prize of £10 for the best Female Animal of the Ayrshire breed entered with a number in the Ayrshire Cattle Herd-Book not later than 1st Jan. 1911.								
TOTAL PRIZE MONEY								£158
FAT CATTLE								
President's Medal for best Fat Animal								
15/-	25/-	33		Ox, any pure breed or cross, calved after 1st Dec. 1908	5	2	—	—
15/-	25/-	34		Ox, any pure breed or cross, calved after 1st Dec. 1909	5	2	—	—
15/-	25/-	35		Heifer, any pure breed or cross, calved after 1st Dec. 1908	5	2	—	—
15/-	25/-	36		Heifer, any pure breed or cross, calved after 1st Dec. 1909	5	2	—	—
TOTAL PRIZE MONEY								£28
Total Prize Money for Cattle, £186								

<sup>1</sup> Cows in these Classes must have produced a calf within fifteen months prior to the Show.

<sup>2</sup> Given by the Ayrshire Cattle Herd-Book Society.

ENTRY FEES		CLASS	PREMIUMS			
Members	Non- Members		First	Second	Third	Fourth
<sup>1</sup> HORSES						
FOR AGRICULTURAL PURPOSES						
DRAUGHT STALLIONS						
<i>President's Medal for best Clydesdale Stallion or Colt</i>						
30/-	40/-	37	Stallion foaled before 1908 . . . . .	20	15	10 4
30/-	40/-	38	Entire Colt foaled in 1908 . . . . .	20	15	10 4
30/-	40/-	39	Entire Colt foaled in 1909 . . . . .	20	12	8 4
22/6	32/6	40	Entire Colt foaled in 1910 . . . . .	15	10	6 4
Breeder of best Male Animal of any age in the four Classes—The Silver Medal.						
TOTAL PRIZE MONEY . . . . .				£177		
DRAUGHT GELDINGS						
<i>President's Medal for best Draught Gelding</i>						
22/6	32/6	41	Draught Gelding foaled before 1908 . . . . .	10	5	3 -
22/6	32/6	42	Draught Gelding foaled in 1908 . . . . .	6	4	3 -
22/6	32/6	43	Draught Gelding foaled in 1909 . . . . .	6	4	3 -
TOTAL PRIZE MONEY . . . . .				£44		
DRAUGHT MARES AND FILLIES						
<i>President's Medal for best Clydesdale Mare or Filly</i>						
30/-	40/-	44	Mare of any age, with Foal at foot . . . . .	20	12	7 4
22/6	32/6	45	Yeld Mare foaled before 1908 . . . . .	12	9	6 4
22/6	32/6	46	Yeld Mare or Filly foaled in 1908 . . . . .	12	9	6 4
22/6	32/6	47	Filly foaled in 1909 . . . . .	12	9	6 4
22/6	32/6	48	Filly foaled in 1910 . . . . .	12	9	6 4
Best Clydesdale Mare or Filly—Cawdor Challenge Cup, value 50 guineas. See Conditions below. <sup>2</sup>						
TOTAL PRIZE MONEY . . . . .				£167		
Total Prize Money for Clydesdales, £388						

<sup>1</sup> No animal is allowed to compete in more than one Class, except that horses entered in both Classes may also compete in the Jumping and Driving Classes.

<sup>2</sup> This Cup is offered by the Clydesdale Horse Society of Great Britain and Ireland (under the conditions of that Society) for the best Clydesdale Mare or Filly registered in the Clydesdale Stud-Book, entered in any of the Draught Horse classes, at the Show at which it is to be competed for. The Cup must be won four times by an Exhibitor with different animals (not necessarily in consecutive years) before it becomes his absolute property. The animal which this Cup must be certified free from hereditary diseases. The winner of the Cup, other than the absolute winner, shall, before delivery thereof is made to him, surrender it to the Clydesdale Horse Society that he shall surrender the same to the Secretary of the Society at the Show office when called upon to do so. Until the Cup is won, the exhibitor on each occasion will receive the Clydesdale Horse Society's Silver Medal as a token of the winning.

ENTRY FEES		CLASS			PREMIUMS		
Members	Non-Members				First	Second	Third
				<b>HORSES</b>			
				<b>HUNTERS</b>			
				<i>President's Medal for best Hunter</i>			
22/6	32/6	49	Colt, Gelding, or Filly, foaled in 1910, the produce of thoroughbred Stallions, out of Mares of any breed		10	5	3
22/6	32/6	50	Filly, Mare, or Gelding, for field, foaled in 1909—in hand		10	5	3
22/6	32/6	51	Yeld Mare, Filly, or Gelding, for field, foaled in 1908—in hand		10	5	3
			Best Hunter Filly in the foregoing Classes, registered, with a number, in the Hunter Stud-Book—Champion Gold Medal.				
30/-	40/-	52	Hunter Brood Mare, with Foal at foot		15	8	4
			TOTAL PRIZE MONEY	£81			
				<b>HACKNEYS</b>			
			<i>(All to be shown in hand)</i>				
			<i>President's Medal for best Hackney in Classes 53 to 55</i>				
30/-	40/-	53	Brood Mare, 14 hands and over, with Foal at foot, or to foal this season to a registered sire		10	6	4
22/6	32/6	54	Yeld Mare or Filly foaled in 1908		8	5	3
30/-	40/-	55	Stallion, three years old and upwards, 14 hands and over		10	6	4
			All animals entered in the above Hackney Classes must be registered in the Hackney Stud-Book.				
			TOTAL PRIZE MONEY	£56			
				<b>PONIES</b>			
			<i>(Classes 56 to 59 will be judged by Hackney Judges)</i>				
			<i>President's Medal for best Pony</i>				
22/6	32/6	56	Stallion, 3 years old and upwards, 14 hands and under—in hand		5	3	2
22/6	32/6	57	Yeld Mare, Filly, or Gelding, 3 years old and upwards, over 13 and not over 14 hands—in saddle		5	3	2
22/6	32/6	58	Yeld Mare, Filly, or Gelding, 3 years old and upwards, over 12 and not over 13 hands—in saddle		5	3	2
22/6	32/6	59	Yeld Mare, Filly, or Gelding, 3 years old and upwards, 12 hands and under—in hand		5	3	2
			TOTAL PRIZE MONEY	£40			

ENTRY FEES		CLASS	HORSES	PREMIUMS			
Members	Non-Members			First	Second	Third	Fourth
				£	£	£	£
1 HIGHLAND PONIES							
<i>President's Medal for best Highland Pony</i>							
22/6	32/6	60	Highland Pony Stallion of the heavy type, 3 years old or upwards, not exceeding 14.2 hands, entered or accepted for entry in the Highland Pony Section of the Polo Pony Stud-Book . . . . .	10	3	2	—
22/6	32/6	61	Highland Pony Stallion of the light type, three years old or upwards, not exceeding 14.2 hands, entered or accepted for entry in the Highland Pony Section of the Polo Pony Stud-Book . . . . .	10	3	2	—
22/6	32/6	62	Highland Pony Mare of the heavy type, 3 years old or upwards, not exceeding 14.2 hands, yeld or with Foal at foot, entered or accepted for entry in the Highland Pony Section of the Polo Pony Stud-Book . . . . .	10	3	2	—
22/6	32/6	63	Highland Pony Mare of the light type, 3 years old or upwards, not exceeding 14.2 hands, yeld or with Foal at foot, entered or accepted for entry in the Highland Pony Section of the Polo Pony Stud-Book . . . . .	10	3	2	—
<i>The Judge shall have power to transfer to the proper Class any animal entered wrongly as to type.</i>							
2 TOTAL PRIZE MONEY . . . . .				£60			
SHETLAND PONIES							
<i>(All to be shown in hand)</i>							
<i>President's Medal for best Shetland Pony</i>							
20/-	30/-	64	Stallion, not exceeding 10½ hands, foaled before 1908 . . . . .	5	4	3	2
20/-	30/-	65	Entire Colt, not exceeding 10½ hands, foaled in 1908 or 1909 . . . . .	5	4	3	2
20/-	30/-	66	Mare, not exceeding 10½ hands, with Foal at foot . . . . .	5	4	3	2
20/-	30/-	67	Yeld Mare, not exceeding 10½ hands . . . . .	5	4	3	2
20/-	30/-	68	Filly, not exceeding 10½ hands, foaled in 1908 or 1909 . . . . .	5	4	3	2

<sup>1</sup> Exhibitors desirous of entering in these Classes Ponies not yet accepted for entry in the Highland Pony Section of the Polo Pony Stud-Book are recommended to communicate with Mr. Munro Mackenzie of Calgary, Isle of Mull, who will advise as to the steps to be taken with a view to the registration of the Ponies. All entries for above Classes must be accompanied by certificate, either from Mr. Mackenzie or from Mr. A. H. Chaston, Secretary to the Polo and Riding Pony Society, 12 Hanover Square, London, W., to the effect that the animals are eligible for entry in the Highland Pony Section of the Polo Pony Stud-Book.

<sup>2</sup> The Polo and Riding Pony Society give £15 towards these prizes.

ENTRY FEES		CLASS	PREMIUMS			
Members	Non-Members		First	Second	Third	Fourth
			£	£	£	£
<b>HORSES</b>						
<b>SHETLAND PONIES—continued</b>						
<sup>1</sup> Group of Shetland Ponies, consisting of Mare and two of her progeny, exhibited in the ordinary Classes or as "Extra Stock," and entered or eligible for entry in the Shetland Pony Stud-Book—Special Prize, value £10.						
<sup>1</sup> Silver Medal for best Shetland Pony, exhibited in ordinary Classes, of opposite sex to the winner of the President's Champion Medal.						
TOTAL PRIZE MONEY						£70
<b><sup>2</sup> DRIVING COMPETITIONS</b>						
<sup>3</sup> President's Medal for best animal in the Classes for Horses in Harness						
22/6	32/6	69	Yeld Mare, Filly, or Gelding, any age, in Harness, 15 hands and upwards, to be driven in the ring.			
			10	5	3	-
22/6	32/6	70	Yeld Mare, Filly, or Gelding, any age, in Harness, under 15 hands, to be driven in the ring.			
			10	5	3	-
Special Prize for best Pony in Class 70, under 13 hands			5	-	-	-
TOTAL PRIZE MONEY						£41
Total for Horses, £736						

<sup>1</sup> Given by the President of the Shetland Pony Stud-Book.

<sup>2</sup> Animals entered in other Classes may be entered in the Driving Classes at an additional fee of 5s. if they are eligible.

<sup>3</sup> An animal that has won a President's Medal in another section in this Show shall not be eligible to compete for the Medal in this section.

## JUMPING COMPETITIONS

## SPECIAL REGULATIONS

(See also the Regulations on pages 57 to 64)

1. Jumping Competitions will take place on the afternoons of Wednesday, Thursday, and Friday, the 26th, 27th, and 28th July.
2. Entries for each day's Competitions will close at the Secretary's Office in the Showyard at 6 P.M. on the preceding day.
3. Entry Fees.—Wednesday, £1; Thursday and Friday, 10s. for each class.
4. Accommodation for jumping horses will be provided as follows: Covered shed in which to stand during the day free of charge; or, on application to the Secretary not less than ten days before the opening of the Show, stalls or loose-boxes will be provided at a charge (in addition to the Entry Fee) of £1 for a stall, and £1, 10s. for a loose-box, which must be paid along with the Entry Fee at the time of application.
5. Horses entered for jumping only need not enter the Showyard till 12 noon on the day of Competition, and may leave the Showyard at 6 P.M. each day.
6. The Jumps may consist of Single Hurdle, Gate, Double Hurdle, Wall, and Water Jump, power being reserved by the Society to alter these, as well as the Handicaps, as may be thought desirable.

CLASS		First	Second	Third	Fourth	Fifth
		£	£	£	£	£
	<b>WEDNESDAY.</b>					
1	Horse or Pony any height . . . . .	20	15	10	5	3
	<b>THURSDAY.</b>					
2	Horse or Pony any height, Handicap, hurdles and gate being raised 8 inches for the winner of the first prize, and 4 inches for the winner of the second prize in Class 1 . . . . .	10	8	5	3	2
	<b>FRIDAY.</b>					
3	Horse or Pony any height, Handicap, hurdles and gate being raised 8 inches for the winner of the first prize, and 4 inches for the winner of the second prize in either of Classes 1 or 2—4 inches extra for the winner of the two first prizes in Classes 1 and 2 . . . . .	10	8	5	3	2
	Champion Prize for most points in Prizes with one or more horses in above Classes—First Prize to count five points; Second Prize, four points; Third Prize, three points; Fourth Prize, two points; and Fifth Prize, one point—the money to be evenly divided in the event of a tie . . . . .	10	—	—	—	—
	<b>Total Prize Money for Jumping, £100</b>					



ENTRY FEES		CLASS	S H E E P				PREMIUMS			
Members	Non-Members		BLACKFACE				First	Second	Third	Fourth
			<i>President's Medal for best pen of Blackface Sheep</i>				£	£	£	£
10/-	15/-	71	Tup above one shear . . . . .				12	8	4	2
10/-	15/-	72	Shearling Tup . . . . .				12	8	4	2
10/-	15/-	73	Ewe above one shear, with her Lamb at foot . . . . .				10	5	2	—
10/-	15/-	74	Shearling Ewe or Gimmer . . . . .				10	5	2	—
10/-	15/-	75	<sup>1</sup> Blackface Shearling Tup, clipped on or after 1st March 1911, to be inspected by two neutral witnesses and certified that no part of the animal has been clipped prior to that date*—£12, £8, £4, and £2.							
			TOTAL PRIZE MONEY . . . . .				£86			
			C H E V I O T							
			<i>President's Medal for best pen of Cheviot Sheep</i>							
10/-	15/-	76	Tup above one shear . . . . .				12	8	4	2
10/-	15/-	77	Shearling Tup . . . . .				12	8	4	2
10/-	15/-	78	Ewe above one shear, with her Lamb at foot . . . . .				10	5	2	—
10/-	15/-	79	Shearling Ewe or Gimmer . . . . .				10	5	2	—
			<sup>2</sup> Perpetual Challenge Cup, gifted by Mr Borthwick, value £25, for best Sheep in the Cheviot Classes.							
			TOTAL PRIZE MONEY . . . . .				£86			
			B O R D E R L E I C E S T E R							
			<i>President's Medal for best pen of Border Leicesters</i>							
10/-	15/-	80	Tup above one shear . . . . .				12	8	4	2
10/-	15/-	81	Shearling Tup . . . . .				12	8	4	2
10/-	15/-	82	Ewe above one shear . . . . .				10	5	2	—
10/-	15/-	83	Shearling Ewe or Gimmer . . . . .				10	5	2	—
			<sup>3</sup> Gold Medal for best animal in the Border Leicester Classes, registered or eligible for registration in the Border Leicester Flock-Book.							
			TOTAL PRIZE MONEY . . . . .				£86			
			H A L F - B R E D							
			<i>President's Medal for best pen of Half-Breds</i>							
10/-	15/-	84	Tup above one shear . . . . .				12	8	4	2
10/-	15/-	85	Shearling Tup . . . . .				12	8	4	2
10/-	15/-	86	Ewe above one shear . . . . .				10	5	2	—
10/-	15/-	87	Shearling Ewe or Gimmer . . . . .				10	5	2	—
			TOTAL PRIZE MONEY . . . . .				£86			

<sup>1</sup> Given by Mr Charles Howatson of Glenbuck.<sup>2</sup> Given by the Cheviot Sheep Society.<sup>3</sup> Given by the Society of Border Leicester Sheep-Breeders.

\* Certificates as to clipping must be lodged along with Entry.

ENTRY FEES		CLASS	PREMIUMS		
Members	Non-Members		First	Second	Third
			£	£	£
SHEEP					
SHROPSHIRE					
President's Medal for best pen of Shropshires					
10/-	15/-	88	Shearling Tup . . . . .	6	4 2
10/-	15/-	89	Shearling Ewe or Gimmer . . . . .	5	3 2
TOTAL PRIZE MONEY . . . . .			£22		
OXFORD-DOWN					
President's Medal for best pen of Oxford-Down					
10/-	15/-	90	Shearling Tup . . . . .	6	4 2
10/-	15/-	91	Shearling Ewe or Gimmer . . . . .	5	3 2
Best Shearling Oxford-Down Tup in Class 90 bred in Scotland, to be registered in Oxford-Down Flock-Book before prizes will be paid—£5, £3, and £2.					
TOTAL PRIZE MONEY . . . . .			£22		
SUFFOLK					
President's Medal for best pen of Suffolk Sheep					
10/-	15/-	92	Shearling Tup . . . . .	6	4 2
10/-	15/-	93	Shearling Ewe or Gimmer . . . . .	5	3 2
10/-	15/-	94	Tup Lamb—£5, £3, and £2.		
10/-	15/-	95	Three Ewe Lambs, £5, £3, and £2.		
TOTAL PRIZE MONEY . . . . .			£22		
FAT SHEEP					
10/-	15/-	96	Three Fat Lambs, any breed or cross, dropped in the year of the Show . . . . .	5	2
Total Prize Money for Sheep, £418					

<sup>1</sup> Given by Oxford-Down Sheep-Breeders' Association.

<sup>2</sup> Given by the Suffolk Sheep Society.

ENTRY FEES		CLASS		PREMIUMS		
Members	Non-Members			First	Second	Third
			<b>SWINE</b>			
			<i>President's Medal for best pen of Swine</i>	£	£	£
			<b>LARGE WHITE BREED</b>			
10/-	15/-	97	Boar farrowed before 1910 . . . .	6	3	2
10/-	15/-	98	Boar farrowed in 1910 . . . .	6	3	2
10/-	15/-	99	Boar farrowed in 1911 . . . .	4	2	1
10/-	15/-	100	Sow farrowed before 1910 . . . .	6	3	2
10/-	15/-	101	Sow farrowed in 1910 . . . .	6	3	2
10/-	15/-	102	Sow farrowed in 1911 . . . .	4	2	1
			TOTAL PRIZE MONEY . . . £58			
			<b>BERKSHIRE</b>			
10/-	15/-	103	Boar, any age . . . .	6	3	2
10/-	15/-	104	Boar farrowed in 1911 . . . .	4	2	1
10/-	15/-	105	Sow, any age . . . .	6	3	2
10/-	15/-	106	Sow farrowed in 1911 . . . .	4	3	1
			TOTAL PRIZE MONEY . . . £37			
			<b>Total Prize Money for Swine, £95</b>			

## EXTRA STOCK

Animals not included in the Classes for Competition may be exhibited as Extra Stock, and may receive Awards as follows:—Very Highly Commended, or Highly Commended, carrying the Medium Silver Medal; or Commended, for which the Bronze Medal is given.

Animals entered as Extra Stock are eligible to compete for the President's Medals, whether former winners of these Medals or not.

*Entry fees—same as corresponding Classes.*

## POULTRY

*First Premium*—ONE SOVEREIGN; *Second Premium*—TEN SHILLINGS. In each Class in which there are six or more pens competing, a Third Prize of Five Shillings may be awarded, provided there is sufficient merit in the pens. Three or more Commendations may also be given—thus, Very Highly Commended, Highly Commended, and Commended.

*Champion Medals* are offered as follows:—

- |                                |                         |
|--------------------------------|-------------------------|
| 1. Best Cock, any Variety.     | 5. Best Pen of Ducks.   |
| 2. Best Hen, any Variety.      | 6. Best Pen of Geese.   |
| 3. Best Cockerel, any Variety. | 7. Best Pen of Turkeys. |
| 4. Best Pullet, any Variety.   |                         |

Aged Birds must have been hatched previous to, and Cockerels and Pullets in, the year of the Show.

*Entry Fees*—Members, 2s.; Non-Members, 8s.

DORKING—	Class	LANGSHAN	Class
<i>Coloured</i> . . . .	1. Cock	. . . .	39. Cock
	2. Hen		40. Hen
	3. Cockerel		41. Cockerel
	4. Pullet		42. Pullet
<i>Silver Gray</i> . . . .	5. Cock	ORPINGTON—	
	6. Hen	<i>Black</i> . . . .	43. Cock
	7. Cockerel		44. Hen
	8. Pullet		45. Cockerel
BRAHMAPOOTRA OF COCHIN—			46. Pullet
CHINA . . . .	9. Cock	<i>Buff</i> . . . .	47. Cock
	10. Hen		48. Hen
	11. Cockerel		49. Cockerel
	12. Pullet		50. Pullet
SCOTCH GREY . . . .	13. Cock	<i>Any other Variety</i> . . . .	51. Cock
	14. Hen		52. Hen
	15. Cockerel		53. Cockerel
	16. Pullet		54. Pullet
HAMBURG—		WYANDOTTE—	
<i>Black</i> . . . .	17. Cock	<i>Gold or Silver</i> . . . .	55. Cock
	18. Hen		56. Hen
<i>Any other Variety</i> . . . .	19. Cock		57. Cockerel
	20. Hen		58. Pullet
<i>Any Variety</i> . . . .	21. Cockerel	<i>Black or White</i> . . . .	59. Cock
	22. Pullet		60. Hen
PLYMOUTH ROCK . . . .	23. Cock		61. Cockerel
	24. Hen	<i>Any other Variety</i> . . . .	62. Pullet
	25. Cockerel		63. Cock
	26. Pullet		64. Hen
MINORCA . . . .	27. Cock		65. Cockerel
	28. Hen		66. Pullet
	29. Cockerel	INDIAN GAME . . . .	67. Cock
	30. Pullet		68. Hen
LEGHORN—		GAME—	
<i>White</i> . . . .	31. Cock	<i>Old English</i> . . . .	69. Cock
	32. Hen		70. Hen
	33. Cockerel	<i>Modern</i> . . . .	71. Cock
	34. Pullet		72. Hen
<i>Any other Variety</i> . . . .	35. Cock	<i>Indian and Old English</i>	
	36. Hen	<i>Game</i> . . . .	73. Cockerel
	37. Cockerel		74. Pullet
	38. Pullet		

BANTAM—		Class	DUCKS—	Class
<i>Game, any Variety, including Old English and Indian Game</i>		75. Cock	<i>Aylesbury.</i>	85. Drake
		76. Hen		86. Duck
<i>Any other Variety Bantam</i>		77. Cock		87. { Drake (Young)
		78. Hen		88. { Duck (Young)
ANY OTHER RECOGNISED			<i>Rouen</i>	89. Drake
BREED OF POULTRY.		79. Cock		90. Duck
		80. Hen	<i>Any other Variety</i>	91. Drake
		81. Cockerel		92. Duck
		82. Pullet	<i>Any Variety (Aylesbury excepted)</i>	93. { Drake (Young)
TABLE FOWLS—				94. { Duck (Young)
<i>Any Breed or Cross, to be judged solely as Table Fowls, and without regard to fancy points</i>		83. { Pair of Cockerels	GEESE	95. Gander
		84. { Pair of Pullets	TURKEYS	96. Goose
				97. Cock
				98. Hen

AMOUNT OF POULTRY PREMIUMS, £171, 10s.

## DAIRY PRODUCE

No Exhibitor to show more than one lot in any Class.

Entry Fees—Members, 4s.; Non-Members, 6s.

Class	Premiums.			
	1st.	2nd.	3rd.	
	£	£	£	
1. Powdered Butter, not less than 7 lb.	4	2	1	
2. Fresh Butter, three 1-lb. rolls	4	2	1	£14
3. Cheddar Cheese, 56 lb. and upwards—£6, £4, £2, and £1				18
4. Sweet-Milk Cheese, flat shape, white in colour, made according to the Dunlop or other method—£3, £2, £1.				6
				£38

# TRIAL OF POTATO DIGGERS OR LIFTERS

*The Society will hold a Trial of New Potato Diggers or Lifters, or of  
Old Potato Diggers or Lifters with Radical Improvements*

## RULES AND REGULATIONS

1. *Entries will close* on Monday, 15th May 1911.
2. No Entry Fee will be charged.
3. Entries must be made on the printed form, to be had from the Secretary.
4. Diggers or Lifters entered for the Trial must be exhibited at the Inverness Show, and the Digger exhibited at the Show must be the one taking part in the Trial.
5. It will rest with the Society's Committee in charge of the Trial to decide as to what shall constitute a "Radical Improvement," qualifying an old Digger or Lifter to take part in the Trial.
6. Intimation of the date and place of the Trial will be given to Exhibitors not less than ten days before the Trial takes place. The Trial will be held in the Edinburgh district.
7. Exhibitors will be required to have their Diggers ready to start by 8 A.M. on the day of the Trial.
8. Exhibitors will provide horses and labour for working their Diggers.
9. The Trial will extend over one or more days, at the discretion of the Committee, who shall have the power to postpone or continue the Trial till subsequent days, to be fixed by them.
10. The Committee shall have power to test the draught of each Digger, to otherwise scrutinise its working as they may consider desirable, and to make notes and observations of the same for incorporation in an official Report of the Trials. The sum of £50 is placed at the disposal of the Committee to be awarded in one or more premiums if such award should be considered merited.
11. Exhibitors and their representatives, and all others attending the Trial, will be required to abide by the orders of the Committee or Secretary.
12. The Society shall not be liable for any loss or damage sustained by Exhibitors or others at or in connection with the Trial, or through the Trial not taking place.
13. The Committee and Secretary are empowered to enforce these Regulations, and to make and enforce such other Regulations and arrangements as they may deem necessary in connection with or at the Trial.

JAMES MACDONALD

## ABSTRACT OF PREMIUMS.

(23 Champion Medals given by THE RIGHT HON. LORD LOVAT.)

## GIVEN BY THE SOCIETY.

1. Cattle . . . . .	£818 0 0
2. Horses . . . . .	736 0 0
3. Jumping . . . . .	119 0 0
4. Sheep . . . . .	418 0 0
5. Swine . . . . .	95 0 0
6. Poultry . . . . .	171 10 0
7. Dairy Produce . . . . .	33 0 0
8. Medals to Breeders, &c. . . . .	20 0 0
9. Prizes for Timber <sup>1</sup> . . . . .	20 0 0
10. Prizes for Trial of Potato Diggers <sup>2</sup> . . . . .	50 0 0
	<hr/>
	£2480 10 0
Less Private Subscriptions . . . . .	15 0 0
	<hr/>
Given by the Society . . . . .	£2465 10 0

## CONTRIBUTED PRIZES.

1. The Shorthorn Society . . . . .	£40 0 0
*2. The late Sir George Macpherson Grant, Bart. . . . .	50 0 0
*3. The late Mr C. Macpherson Grant of Drumduan . . . . .	50 0 0
4. Aberdeen-Angus Cattle Society . . . . .	10 0 0
5. Ayrshire Cattle Herd-Book Society . . . . .	20 0 0
*6. Cawdor Challenge Cup . . . . .	52 10 0
7. Hunters' Improvement Society . . . . .	10 0 0
8. Polo and Riding Pony Society . . . . .	15 0 0
9. The President of the Shetland Pony Stud-Book . . . . .	10 0 0
10. Mr C. Howatson of Glenbuck . . . . .	26 0 0
*11. Borthwick Challenge Cup . . . . .	25 0 0
12. Society of Border Leicester Sheep-Breeders . . . . .	10 0 0
13. Oxford-Down Sheep-Breeders' Association . . . . .	10 0 0
14. Suffolk Sheep Society . . . . .	20 0 0
15. Tweeddale Gold Medal . . . . .	16 0 0
	<hr/>
	864 10 0
	<hr/>
	£2880 0 0
	<hr/>

<sup>1</sup> Grant to Royal Scottish Arboricultural Society for Prizes for Timber.<sup>2</sup> To be held in autumn of this year.

\* Challenge Prizes.

JAMES MACDONALD, *Secretary.*GEORGE IV. BRIDGE,  
EDINBURGH, *March 1911.*

The Society's Show for 1912 will be held at Cupar-Fife  
on the 9th, 10th, 11th, and 12th July.

# APPENDIX B

## LIST OF MEMBERS

OF

## THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND

ARRANGED ACCORDING TO COUNTIES  
AND SHOW DISTRICTS

1911



By the Charter of 1834 the Society consists of two classes, Ordinary and Honorary or Corresponding Members. The number of Honorary or Corresponding Members resident in the United Kingdom must not exceed twenty, but with power to the Society to elect as Honorary Associates persons resident abroad, not subjects of her Majesty, who may have been benefactors to the Society, or who are distinguished for their skill in Art or Science, provided that the number of such Foreign Associates shall not exceed twenty.

By a Bye-law passed in 1873, with reference to the Supplementary Charter of 1856, successful Candidates for the Society's Agricultural Diploma were thereby eligible to be elected free Life Members of the Society. This Bye-law was rescinded in 1900.

Candidates for admission to the Society must be proposed by a Member, and are elected at the half-yearly General Meetings in January, and June or July. It is not necessary that the proposer should attend the meeting.

*Higher Subscription.*—The Ordinary Annual Subscription is £1, 3s. 6d., and the Ordinary Subscription for Life-Membership is £12, 12s.; or, after ten annual payments have been made, £7, 7s.

*Lower Subscription.*—Proprietors farming the whole of their own lands, whose Rental on the Valuation Roll does not exceed £500 per annum, and all Tenant-Farmers, Secretaries or Treasurers of Local Agricultural Associations, Factors resident on Estates, Land Stewards, Foresters, Agricultural Implement Makers, and Veterinary Surgeons, none of them being also owners of land to an extent exceeding £500 per annum, are admitted on a Subscription of 10s. annually, which may be redeemed by one payment of £7, 7s., and after eight annual payments of 10s. have been made, a Life Subscription may be purchased for £5, 5s., and after twelve such payments, for £3, 3s. Subscriptions are payable on election, and afterwards annually in January.

According to the Charter, "Any person elected an Ordinary Member of the Society who shall not have objected to his election, on the same being intimated to him by the Secretary, shall not be entitled to resign or withdraw his name as a Member of the Society, unless he shall have paid up his Life Subscription, or shall have previously settled and paid in Annual Contributions a sum equal to that fixed by the Society at the time of his election, to be paid by Members as the purchase of a Life Subscription in lieu and in redemption of the Annual Payments." The Life Subscription for a Member paying £1, 3s. 6d. is £12, 12s., and for a Member paying 10s., £7, 7s.

Members having Candidates to propose are requested to state whether the Candidate should be on the £1, 3s. 6d. or 10s. list.

Members of the Society receive the 'Transactions' free on application, and are entitled to consult the Chemist and Botanist at reduced rates—to apply for District Premiums—to report Ploughing Matches for the Medal—to free admission to the Showyard, and to exhibit Stock and Implements at reduced rates. Firms are not admitted as Members, but if one partner of a firm becomes a Member, the firm is allowed to exhibit at Members' rates.

Members having Candidates to propose are requested to send their names to JAMES MACDONALD, Esq., 3 George IV. Bridge, Edinburgh.

By a Resolution of the Directors, 2nd February 1887, the list of Members, arranged according to Counties, has been so made up that no Member shall vote in more than one Show District for the nomination of Directors. Members finding any mistakes are requested to report the same to JAMES MACDONALD, Esq., 3 George IV. Bridge, Edinburgh.

The following is the List of Counties constituting the Show Districts :—

	PAGE
<b>1. Glasgow,</b> for the Counties of Argyll, Ayr, Bute, Lanark, and Renfrew,—	
Argyll . . . . .	5
Ayr . . . . .	7
Bute . . . . .	9
Lanark . . . . .	10
Renfrew . . . . .	14
<b>2. Perth,</b> for the Counties of Fife, Forfar (Western Division), Kinross, and Perth (Perth Show Division),—	
Fife . . . . .	16
Forfar (Western Division) . . . . .	20
Kinross . . . . .	21
Perth (Perth Show Division) . . . . .	21
<b>3. Stirling,</b> for the Counties of Clackmannan, Dumbarton, Perth (Stirling Show Division), and Stirling,—	
Clackmannan . . . . .	26
Dumbarton . . . . .	26
Perth (Stirling Show Division) . . . . .	27
Stirling . . . . .	29
<b>4. Edinburgh,</b> for the Counties of Edinburgh, Haddington, and Linlithgow,—	
Edinburgh . . . . .	32
Haddington . . . . .	33
Linlithgow . . . . .	39
<b>5. Aberdeen,</b> for the Counties of Aberdeen, Banff, Forfar (Eastern Division), and Kincardine,—	
Aberdeen . . . . .	41
Banff . . . . .	46
Forfar (Eastern Division) . . . . .	47
Kincardine . . . . .	48

*List of Counties constituting Show Districts.*

**6. Dumfries**, for the Counties of Dumfries, Kirkcudbright, and Wigtown,—

Dumfries . . . . .	50
Kirkcudbright . . . . .	53
Wigtown . . . . .	55

**7. Inverness**, for the Counties of Caithness, Elgin, Inverness, Nairn, Orkney and Shetland, Ross and Cromarty, and Sutherland,—

Caithness . . . . .	57
Elgin . . . . .	57
Inverness . . . . .	59
Nairn . . . . .	60
Orkney and Shetland—	
Orkney . . . . .	61
Shetland . . . . .	61
Ross and Cromarty . . . . .	61
Sutherland . . . . .	63

**8. Border District**, for the Counties of Berwick, Peebles, Roxburgh, and Selkirk,—

Berwick . . . . .	64
Peebles . . . . .	65
Roxburgh . . . . .	66
Selkirk . . . . .	68

England . . . . .	69
Ireland . . . . .	74
The Colonies . . . . .	75
Foreign Countries . . . . .	76
Members whose Residences are unknown . . . . .	77
Diploma Holders, Free Life Members . . . . .	80
Holder of First-Class Certificate in Forestry, Free Life Members . . . . .	82

# LIST OF MEMBERS

ARRANGED ACCORDING TO COUNTIES AND SHOW DISTRICTS.

*The Members marked \* have been Presidents, and † Vice-Presidents.*

## HONORARY MEMBERS.

- |   |   |
|---|---|
| 1898* His Most Gracious Majesty THE KING  | 1903 Ewart, Professor J. Cossar, M.D.,<br>F.R.S., University, Edinburgh   |
| 1903 Clarke, Sir Ernest, 81 Tavistock Square,<br>London, W.C.   | 1903 Ogilvie, F. Grant, C.B., Assistant Secre-<br>tary, Board of Education, South Ken-<br>sington, London, S.W. |
| 1905 Craik, Sir Henry, K.C.B., M.P., 5A<br>Deans Yard, Westminster, London                                    | 1908 Plunket, Right Hon. Sir Horace,<br>F.R.S., Kilteragh, Foxrock, Co.<br>Dublin                               |
| 1905 Elliott, Sir Thomas H., K.C.B., Secre-<br>tary, Board of Agriculture, 4 White-<br>hall Place, London, W. |   |

## FOREIGN ASSOCIATES.

- 1908 Bang, Professor B., Copenhagen  
1908 Saunders, Dr Wm., Director, Central Experimental Farm, Ottawa, Canada  
1908 Stebler, Dr F. G., Zurich, Switzerland

## 1.—GLASGOW DISTRICT.

EMBRACING THE

COUNTIES OF ARGYLL, AYR, BUTE, LANARK, AND RENFREW.

### ARGYLL.

- Admitted  
1898 Ainsworth, John Stirling, of Ardnaiselg,  
M.F., Killohrensan  
1881 Allan, Alex., of Aros, Tobermory  
1905 Allan, Bryce, Linnchu, Tobermory  
1889 Anderson, Wm. D., Sylvan Villa, Oban  
1889 Andrew, David, Southend, Campbel-  
town  
1901 Andrew, Matthew, Drimvore, Glassary,  
Lochgilphhead  
1869† Argyll, The Duke of, K.T., Roseneath  
1906 Armstrong, Thos. J. A., Glenborrodale,  
Acharacle, R.S.O.  
1908 Baxter, Neil, Aultgourie, Aros, Mull  
1899 Blackburn, Major Hugh, Annat, Corpach  
1900 Bontain, James S., of Gliscruitten,  
Oban  
1905 Boyd, James, of Cariskay, Southend,  
Kintyre

- Admitted  
1884 Boyd, William, Glenmorven, Drimnin,  
Oban  
1905 Brown, Andrew, Auchallader, Bridge of  
Orchy  
1901 Brown, Arch., Hotel Lochgair, Lech-  
fyne  
1899 Brown, Donald, Dunbeg, Connel Ferry  
1905 Bruce, Peter, Ach-na-oloch, Connel,  
Argyll  
1881 Buchanan, Dr Alexander, Tross, Tober-  
mory  
1900 Buchanan, Frank H., Glenstrae, Connel  
1897 Bullough, Sir George, of Rum, Oban  
1905 Bullough, Tom, of Prusacloch, R.S.O.  
1889 Cameron, Allan Gordon, of Barcaldine  
Castle, Letterkenny, Londonderry  
1905 Cameron, Angus, Beaumont, Kilmun  
1898 Cameron, James, Sheepknowe, Bun-

## Admitted

- 1907 Campbell, Alex., Ardbeg, Port Ellen, Islay  
 1909 Campbell, A. C. Carter of Possil, Fasca-dale, Ardrishaig  
 1894 Campbell, Colin George Felham, of Stonefield, Tarbert  
 1876 Campbell, Capt. D., of Inverneil and Ross, Ardrishaig  
 1882 Campbell, Edward P., Captain, 42nd Highlanders, South Hall, Colintraiwe  
 1886 Campbell, Lt.-Col. H. Burnley, of Ormisdale, Colintraiwe  
 1909 Campbell, Captain John, of Kilberry, Argyllshire  
 1894 Campbell, John, Ardfuir, Kilmartin, Lochgilphead  
 1910 Campbell, John Graham, yr. of Shirvan, Lochgilphead  
 1911 Campbell, Neil Alex., Tigh-an-darroch, Taynuilt  
 1890 Campbell, Robt. C. Graham, of Shirvan, Lochgilphead  
 1877 Clark, Andrew, Islay  
 1908 Clark, A. M., Foltalloch Estate Office, Lochgilphead  
 1898 Clark, Francis William, of Ulva, Aros, N.B.  
 1897 Clark, John W., Garachra, Kilmun  
 1898 Colthart, Robert D., Achateny, Ardnarmurchan, Oban  
 1905 Colvill, John, Rockbank, Campbeltown  
 1906 Cordiner, Matthew, Balliemore, Lochgilphead  
 1899 Corson, Robert H., Auchindarroch, Duror, R.S.O.  
 1885 Corson, Thomas, Auction Mart, Oban  
 1901 Crawford, Robert, Upper Largie, Kilmartin  
 1884 Cresser, Peter C., Brackley, Dalmally  
 1870 Cuddon-Fletcher, Bernard James, of Dunans, Colintraiwe  
 1907 Cullen, Robert, Dunlossit Estate Office, Bridgend, Islay  
 1906 Dick, Matthew, Bank of Scotland, Campbeltown  
 1906 Dobie, John, Clydesdale Bank, Dunoon  
 1899 Downie, James MacAlpine, of Appin, Oban  
 1881 Duncan, R., Royal Hotel, Tigh-na-bru-saich  
 1906 Edgar, James, Ri-Cruin, Lochgilphead  
 1906 Ellison, Francis Beaumont, Bragleenbeg, Kilninver, Oban  
 1898 Ferguson, Arch., Lochaline, Morven  
 1910 Fleming, E. Brown, Kilchoan, Ach-na-saul, Oban  
 1906 Fleming, John, Camquhart, Glendaruel, S.O.  
 1910 Fletcher, Duncan, jun., Lettermore, Kentallen  
 1897 Fletcher, John A., Landale, Strontian  
 1896 Forbes, James, Bailabus, Bridgend, Islay  
 1874 Forsyth, James N. M., of Quinish, Tobermory  
 1898 Fraser, Chas. Jas. Roy, of Lochavich, Kilchrenan  
 1884 Fraser, Duncan, Hotel, Lochawe  
 1896 Fraser, Hugh, Auchinadrain, Tayinloane  
 1901 Gardner, John Neilson, Dail-an-Rois, Corpach  
 1889 Gemmell, John, Dalrioch, Campbeltown  
 1891 Gillies, John, Barnacarry, Kilninver, Oban  
 1897 Gillies, Neill, Fasnacloich, Argyll, N.B.  
 1907 Gooch, Edward Sinclair, Torcastle, Banavie  
 1896 Goodall, William, Estate Office, Isle of Rum, Oban  
 1901 Graham, Alexander, Tonrioch, Campbeltown

## Admitted

- 1899 Graham, Robert F., of Skipness, Whitehouse  
 1894 Greig, James, 6 Glentorran Place, Dalarran, Campbeltown  
 1901 Guthrie, W. M., of Duart, Isle of Mull  
 1873 Hall, Allan, Tangy House, Kilkennie, Kintyre  
 1906 Hall, James M., of Tangy and Killeen, Tayinloan, Kintyre  
 1908 Hall, Robert M'Nab, Bernice Farm, Kilmun, *via* Greenock  
 1906 Hall, Stuart, Killeen House, Tayinloan  
 1888 Hamilton, George, Crear, Kilberry  
 1896 Hay, Colin E., Ardbeg, Islay  
 1889 Hunter, James, Machribeg, Campbeltown  
 1857 Hunter, Wm., Lilybank, Campbeltown  
 1906 Ironside, William, Columba Terrace, Oban  
 1907 Ker, Ronald Scott, Glenreaddell Mains, Whitehouse, Kintyre  
 1850 LAMONT, Sir James, of Knockdow, Greenock  
 1906 Leschallas, Captain John H. P., Glenfinart, Ardentinn, Greenock  
 1906 Lillie, George, Kilchattan, Luing, by Oban  
 1888 Lothian, Jas., Rockwood, Campbeltown  
 1906 Lothian, John, Tobermory  
 1906 M'Alister, John, Ardyne, Toward  
 1906 MacArthur, Alaster, National Bank, Inveraray  
 1896 MacArthur, Alex., Banker, Oban  
 1906 M'Arthur, Archd., Castleton Farm, Lochgilphead  
 1906 M'Arthur, Neil, Balgreggan, Campbeltown  
 1861 M'Callum, John, Ewanfield, Kilm  
 1906 M'Calman, Hugh, Monydrain, Lochgilphead  
 1907 MacColl, Donald, Creagan, So. Oban  
 1879 M'Coll, Duncan, Clachan House, Lisamore, Oban  
 1898 M'Coll, Duncan, Kildalton, Port Ellen, Islay  
 1901 M'Cormick, Duncan, Fincham, Ford, Argyllshire  
 1881 Macdiarmid, H., Island House, Tiree, Oban  
 1899 M'Diarmid, J. A., Auchinreir, Ledaig  
 1882 Macdiarmid, Robert, Corries, Lochawe  
 1906 Macdonald, A., Auchnashellach, Lochgilphead  
 1902 Macdonald, Harry L., of Dunach, Oban  
 1898 Macdonald, J. Ronald M., Largie Castle, Tayinloan  
 1908 Macdonald, T. Martin, of Bargullean, Taynuilt  
 1906 MacDougall, Major A. T., of Duncollie, Oban  
 1882 MacDougall, J. Patten, O.B., of Gallanach, Oban  
 1898 Macfarlane, John, Oladich, Dalmally  
 1873 Macfarlane, Lewis, Invermay, Douglas Pier, Lochgoll  
 1888 MacGregor, Donald, Sollicter, Oban  
 1906 M'Intyre, Alex., Kilbridmore, Glendaruel, S.O.  
 1900 Mackenzie, James, Ardtornish, Morvern  
 1891 Mackenzie, J. H. Munro, of Mornish, Tobermory  
 1896 Mackie, P. Jeffrey, Glenreaddell, Whitehouse, Argyll  
 1906 M'Lachlan, Hugh, Stroneskar, Lochgilphead  
 1886 MacLachlan, Jn., of MacLachlan, Inveraray (12 Abercromby Place, Edinburgh)  
 1907 M'Laine, Alex., 22 Alexandra Place, Oban

## Admitted

- 1911 MacLaine, Kenneth Douglas Lorne, of Lochbuie, Oban  
 1876 M'Latchie, W., Ballyreggan, Campbeltown  
 1906 Maclean, A. T. H., of Ardgour  
 1907 M'Lean, Peter, Skipness, Argyllshire  
 1897 Maclean, Roderick, Gomitra, Aros, Isle of Mull  
 1882 M'Nab, Robert, Beaconsfield, Dunoon  
 1894 M'Nair, Archibald, Moy, Campbeltown  
 1897 M'Naughton, Duncan, Balino, Oban  
 1901 M'Neill, D. B., Lochhead, Ormsary, Ardriashaig  
 1906 M'Nicol, William, Garvie, Glendaruel, S.O.  
 1908 M'Niven, John, Blarcree, Taynuilt  
 1882 M'Phail, John, Ardura, Craignure, Mull  
 1891 Macpherson, Colin D., Corpach, Fort William  
 1907 Macrae, Kenneth, Seaforth, Oban  
 1906 M'Varish, Donald, Invercoe, Glencoe, R.S.O.  
 1905 M'Vean, John, Connel Ferry  
 1908 Malcolm, Colonel, of Potalloch, C.B., Lochgilphead  
 1875 Martin, Donald T., of Dunlossit, Port Askaig, Islay  
 1905 Maxwell, Robert, Baraskomil, Campbeltown  
 1894 Melles, Joseph, Gruline, Aros, Isle of Mull  
 1907 Mercer, Arch., Collingwood, Dunoon  
 1901 Miller, Robert, Torbhilaren, Glassary, Lochgilphead  
 1905 Mitchell, Hugh, Seaford, Campbeltown  
 1903 Mitchell, John, Killinchoch, Lochgilphead  
 1905 Montgomery, James, M.R.C.V.S., Ardriashaig  
 1910 Morrison, Hugh, of Islay, Bridgend, Islay  
 1877 Munro, D. H. C., of Kenlochlaich, Appin  
 1888 Munro, John, Ironmonger, Oban  
 1906 Murray-Allan, R. A., of Glenfeochan, Kilmore, Oban  
 1887 O'Don, Sir A. J. Campbell, of Kilmory, Bart., Lochgilphead  
 1900 Philip, W. W., Estate Office, Gigha  
 1885 Ralston, Robert, Estate Office, Isle of Coll  
 1896 Ramsay, Iain, of Kildalton, Port Ellen, Islay  
 1882 Reid, Peter, Port Ellen, Islay—*Free Life Member*  
 1897 Reid, Robert M., Toward, Kyles of Bute  
 1892 Robertson, Alexander, Chemist, Oban  
 1906 Ross, Alex., General Merchant, Kilmartin  
 1898 Scarlett, W. J. Yorke, of Gigha  
 1906 Sellar, Gerard Craig, Ardtornish, Morvern, Oban  
 1907 Sellar, Mrs Craig, of Ardtornish, Morvern, Oban  
 1884 Shankland, William, Killicheran, Lismore  
 1906 Sinclair, Malcolm, Taraphocain, Fasna-cloich, R.S.O.  
 1909 Smith, Montgomery, Kildavaig, Ard-lamont, Kyles of Bute  
 1894 Stewart, Arch., Parkfergus, Campbeltown  
 1888 Stewart, Com. D., R.N., Knockrioch, Campbeltown  
 1904 Stoddart-MacLellan, W., Melfort, Kilmelfort  
 1908 Struthers, Arch., Demolishbeg, Oban  
 1892 Stuart, Mrs E., Dalness, Glenetive, Taynuilt

## Admitted

- 1906 Stuart, Henry Campbell, Glen Caladh, Tighnabruaich  
 1889 Sutherland, John D., Oban  
 1906 Sutherland, John N., Oban  
 1875 Turner, A., of Kilchamaig, Whitehouse, Kintyre  
 1900 Turner, Charles, Corrachaive, by Sandbank  
 1903 Warde-Aldam, W. W., of Ederline, Ford  
 1905 Weir, A. M., Auchengarron, Glendaruel, S.O.  
 1905 Weir, James, Baligreggan, Campbeltown  
 1906 Weir, John, Gallowhill, Campbeltown  
 1905 Weir, Norman, Tigh-an-truish Hotel, Ardencaple, Kilninver, Oban  
 1876 Whyte, D. C., Crossaig, Kintyre  
 1899 Young, Robert, Knockrioch, Campbeltown  
 1887 Young, William, Drum, Campbeltown  
 1899 Younger, C. A. J., Benmore, Kilmun

## AYR.

- 1882+ATLAS, The Marquis of, Culzean Castle, Maybole  
 1897 Aird, David, 80 Portland Street, Kilmarnock  
 1902 Alexander, Wm., Alticane, Pinwherry, Ayrshire  
 1909 Alston, George, Loudonhill, Darvel  
 1907 Andrew, James, Muirhouse, Monkton  
 1897 Angus, Robt., Ladykirk, Monkton  
 1905 Angus, R. L., Lugar House, Lugar, Ayrshire  
 1908 Arthur, Alexander, Benston, New Cumnock  
 1899 Austin, Robert D. J. Mein, Blackelachrie, Barrhill  
 1907 Baird, Andrew, Garclaugh, New Cumnock  
 1897 Baird, J. G. A., Wellwood, Muirkirk  
 1905 Barr, John, Monkland, Kilmarnock  
 1899 Barr, Thomas, Hobeland, Monkton  
 1908 Beattie, Andrew, Blackcraig, New Cumnock  
 1897+Blair, Colonel Frederick G., of Blair, C.B., Dalry  
 1882 Bone, William, Shalloch Park, Girvan  
 1911 Borland, James, Mossbog, Mauchline  
 1899 Boswell, J. D., of Garrallan, Cumnock (41 Northumberland Street, Edinburgh)  
 1900 Brackenridge, Alex., Onthank, Kilmarnock  
 1904 Brown, Francis Edward, 5 Park Circus, Ayr  
 1906 Bruce, William, Langholm, Dundonald  
 1870 Bruges, Edward C., Dalgig, New Cumnock  
 1908 Bryan, Robert, Orchardton Farm, Cumnock  
 1907 Caldwell, David, jun., Pennyfadnock, Cumnock  
 1908 Caldwell, James, Burnhouses, Kilmarnock  
 1906 Caldwell, John, Springhill, Kilmarnock  
 1897 Cameron, Andrew, Glydesdale Bank, Newmains  
 1894 Campbell, James Archibald, of Craig, Ayr  
 1887 Campbell, W. K. H., of Nether Place, Mauchline  
 1906 Clark, Alex., Auchengarron, Ford  
 1895 Clark, James, Crossaig, Monkton  
 1897 Clark, William, Shawhill, Monkton  
 1895 Clark, William Donald, Currah, Girvan

## Admitted

- 1877 Cochran, James, Cattle Market Hotel, Ayr  
 1899 Cochran, John, Nethercraig, Cross-house, Kilmarnock  
 1906 Coldwell, James, Cockhill, Dundonald  
 1902 Corbett, A. Cameron, of Rowallan, M.P., Kilmarnock  
 1897 Craig, James, Cunning Park, Ayr  
 1897 Craig, James, c/o John Craig, 82 Park Circus, Ayr  
 1895 Craig, John, 32 Park Circus, Ayr  
 1909 Craufurd, Major John Arch. Howison, Borland, Kilmarnock  
 1896 Crawford, Jn., Manraehed, Beith  
 1905 Crawford, Robt., Drumberg, Turnberry  
 1897 Crawford, Thomas, Dowhill, Girvan  
 1878 Cross, Alex., of Knockdon (19 Hope Street, Glasgow)  
 1901 Outhbertson, John, National Bank Buildings, Kilmarnock  
 1889 Dempster, James R., of Ladyton, Galston  
 1903 Donald, John H., Sornbeg, Galston  
 1898 Donald, Thomas, Annandale, Kilmarnock  
 1899 Donald William, Fardale Hill, Kilmarnock  
 1908 Dougan, Andrew, Straid, Girvan  
 1899 Douglas, Thos. A., M.R.C.V.S., Kilmarnock  
 1907 Douglass, Mungo, Wester Hillhouse, Riccarton, Kilmarnock  
 1911 Dow, Thomas, Seed Merchant, Ayr  
 1901 Drummond, Robert, Pocknave, Hurlford  
 1901 Drummond, R. J., West of Scotland Agricultural College, Kilmarnock  
 1910 Dunbar, John D., Furnace Road, Muirkirk  
 1887 Dunlop, And. T. L., Lyonston, Maybole  
*—Free Life Member*  
 1889 Dunlop, Gabriel, Castle Farm, Stewarton  
 1896 Dunlop, James, Midland, Kilmarnock  
 1906 Dunlop, James, Oldhall, Fenwick  
 1875 Dunlop, Quintin, Morriston, Maidens, Ayr  
 1904 Dunlop, Quintin, jun., Greenan, Ayr  
 1897 Dunlop, William, Dunure Mains, Ayr  
 1889 Dunlop, Wm. Hamilton, of Doonside, Ayr  
 1907 Dykes, James, Hillhouse, Troon  
 1897\* Eglinton and Winton, Earl of, Eglinton Castle, Irvine  
 1889 Fergusson, John B., Balgarth, Ayr  
 1909 Findlay-Hamilton, George Douglas, of Wessport and Carnell, Hurlford  
 1897 Forrest, Robert, Knockinlaw, Kilmarnock  
 1875 Foulds, A. R., of Clerkland, Stewarton  
 1897 Gairdner, D. C., Union Bank, Kilmarnock  
 1901 Gairdner, Wm. Cecil, Union Bank, Kilmarnock  
 1898 Gammell, Alexander, Solicitor, Ayr  
 1885 Gammell, Andrew, Lugton Ridge, Beith  
 1904 Gibson, John, Dalscaith, Fenwick  
 1881 Glasgow, The Earl of, Kelburn, Fairlie  
 1906 Goldie, David, Little Shewalton, Irvine  
 1897 Hamilton, James, Dunduff, Ayr  
 1903 Hamilton, James, Langmuir House, Kilmarnock  
 1889 Hannah, John M., Girvan Mains, Girvan  
 1902 Hay, John, 8 Rennie Street, Kilmarnock  
 1872 Hazle, Alexander, Merchant, Ayr  
 1874 Henderson, Richard, Portland Estate Office, Kilmarnock—*Free Life Member*  
 1897 Hendrie, John, Union Bank, Galston  
 1897 Hendrie, Robt., Gilfoot, Newmilns  
 1899 Houldsworth, W. T. R., Kirkbride, Maybole

## Admitted

- 1910 HOWARD-DE-WALDEN, Lord, The Dean, Kilmarnock  
 1876 Howatson, W. M. S., Carskeoch, Patna  
 1865\* Howatson, Charles, of Glenbuck, Glenbuck  
 1896 Howatson, Chas. Nile, yr. of Glenbuck, Glenbuck, N.B.  
 1897 Howie, James, Hillhouse, Kilmarnock  
 1897 Howie, John, 58 Alloway Street, Ayr  
 1857 Howie, John, Hurlford, Kilmarnock  
 1894 Howie, M. G., Towerlands, Irvine  
 1889 Howie, Thomas, Fairfield Mains, Monkton, Ayr  
 1899 Howie, Thos., jun., Maxwood, Galston  
 1867 Hunter, David, 8 Barns Terrace, Ayr  
 1899 Hunter, John S., Foulton, Monkton  
 1895 Hunter, Matthew, Adamhill, Craigie, Kilmarnock  
 1905 Hunter, R. H., Knocklandside, Kilmarnock  
 1908 Hunter, Thomas, Agricultural Implement Works, Maybole  
 1897 Hyslop, William, Knockycoid, Barrhill  
 1904 Hyslop, William, of Bank, New Cumnock  
 1895 Inglis, Chas. D., Stair House, Tarbolton Station  
 1911 Inglis, C. D., Stair House, Tarbolton Station  
 1877 Inglis, Robert, Loveston House, Girvan  
 1885 Johnstone, James, Alloway Cottage, Ayr  
 1888 Kennedy, James, of Doonholm, Ayr  
 1902 Kennedy, Norman, Doonholm, Ayr  
 1895 Kennedy, Roland F., of Finlart, Glenapp, Ballantree  
 1897 Kerr, John, Collenman, Troon  
 1897 Kerr, William, Houdstone, Girvan  
 1896 Kilpatrick, James, Craigie Mains, Kilmarnock  
 1897 Knox, Sir James, Place, Kilbirnie  
 1897 Laidlaw, T. K., Barra House, Largs  
 1910 Latta, Robert, Kyle Farm, Cumnock  
 1910 Latta, William, Boylston, Cumnock  
 1895 Lees, Robert, Lagg, Ayr  
 1865 Lindsay, John, Semple House, Stewarton  
 1895 Lindsay, Thomas C., Aitkenbrae, Monkton, Ayrshire  
 1889 Littlejohn, James, Genoch, Ayr  
 1907 Logan, Michael, Bargenoch, Drongan  
 1897 M'Candie, Donald, The Bungalow, Cumnock  
 1911 M'Connell, John W., Knockdolian, Colmonell  
 1905 M'Cubbin, Wm. D., Lochlands, Maybole  
 1910 M'Gregor, William, Carnegillbank, Tarbolton  
 1910 M'Ilwrick, Gilbert, Kirkby, St Leonards Road, Ayr  
 1910 M'Intyre, Thomas Walker, Sorn  
 1897 M'Jannet, Archibald C., Irvine  
 1905 M'Kay, Thomas, Springbank, Monkton, Ayr  
 1907 Mackinnon, Dugald, Stanley, West Kilbride  
 1910 Macrae, Wm., Royal Bank, Stewarton  
 1877 Marshall, John, Impt. Maker, Maybole  
 1899 Maxwell, William, Sparnelbank, Galston  
 1896 Meikle, John, Camregan, Girvan  
 1888 Middlemas, Wm., Solicitor, Kilmarnock  
 1908 Middleton, James, Estate Office, Braehead, Kilmarnock  
 1909 Millar, James, Burnbank, Symington, Kilmarnock  
 1897 Miller, William, Nile Court, Ayr  
 1875 Mitchell, Andrew, Broomfield, 9 Broomfield Road, Ayr  
 1911 Mitchell, Andrew (Walter Mitchell & Sons), Ayr  
 1898 Mitchell, James, Springfield, Muirkirk  
 1897 Mitchell, Matthew, Milton, Galston  
 1906 Mitchell, William, Grougar Mains, Kilmarnock

## Admitted

- 1909 MONTGOMERIE, Lord, Eglinton Castle, Irvine  
 1907 Montgomerie, A. W., Lessnessock, Ochiltree  
 1893 Morton, Alexander, Gowanbank, Darvel  
 1892 Morton, William, Highbowhill, Newmills  
 1897 Muir, Gilbert, Knockdon, Maybole  
 1897 Murchland, William, Bank Street, Kilmarnock  
 1897 Murray, John, Carston, Ochiltree  
 1911 Murray, John, Muir, Cumnock  
 1904 Neill, James, Barleith, Hurlford, Kilmarnock  
 1900 Neill, Thomas, Shawhill House, Hurlford, Kilmarnock  
 1897 Neilson, Walter, Ewanfield, Ayr  
 1884 Niven, Richard, Airlie, Ayr  
 1870 Oswald, Rich. A., of Auchincruive, Ayr  
 1897 Page, Andrew D., Culzean Home Farm, Maybole  
 1907 Paterson, Wm., Wellpark, Kilmarnock  
 1897 Paton, A. B., Hershawmuir, Kilmarnock  
 1888 Paton, Hugh (W. Samson & Co.), Kilmarnock  
 1899 Paton, R. Johnston (W. & T. Samson), Kilmarnock  
 1907 Patrick, Andrew C., Greenbank, Dalry, Ayrshire  
 1897 Pearson, J. M., C.E., 5 John Dickie Street, Kilmarnock  
 1900 Pollock, Alex., Tarbolton  
 1905 Pollock, Andrew, Engineer, Mauchline  
 1889 Pollok-Morris, R. M., of Craig, Middleton, Ayr  
 1895 Reid, David H., Engineer, Ayr  
 1898 Robb, Daniel K., Holmes Farm, Kilmarnock—Free Life Member  
 1901 Robertson, Alex. B., The Dean Road, Kilmarnock  
 1902 Robertson, Philip, M.R.A.C., Sandhills, Monkton, Ayrshire  
 1899 Roxburgh, John, Grain Merchant, Mauchline  
 1900 Sandilands, William, High Overmoor, Darvel  
 1906 Scott, C. C., of Halkeshill, Largs  
 1906 Scott, David, Dumfries Estate Office, Cumnock  
 1905 Scott, Robt., Boghead, Girvan  
 1911 Seton, James, Shewalton Mains, Irvine  
 1898 Shaw, D. W., 5 Wellington Square, Ayr  
 1906 Shaw, Jas. Edward, County Clerk, Ayr  
 1898 Shields, Major J., Glenrosa, Newmills  
 1908 Sloan, John, Craoch, New Cumnock  
 1907 Sloan, Mungo, Castlemains, New Cumnock  
 1908 Smith, George, Mount Hamilton, Ayr  
 1908 Smith, John, Kilmaurs Mains, Kilmaurs  
 1889 Smith, Robert, Shields, St Quivox, Ayr  
 1897 Smith, Robert, The Grange, Kilmarnock  
 1906 Smith, William, Langholm, Dundonald  
 1879 Speir, Robert, Roebank, Largs  
 1905 Spiers, John G., Dyke, Dundonald  
 1905 Steel, John, Alton Albany, Barr  
 1904 Steele, John, Shaw, Kilmaurs  
 1895 Steven, John, Purroch, Hurlford, Kilmarnock  
 1885 Stevenson, Allan, Architect, Ayr  
 1907 Stevenson, A. M., Jeanfield, Symington, Kilmarnock  
 1888 Stevenson, David, Silverwood, Kilmarnock  
 1888 Stevenson, John, Woodland, Girvan  
 1906 Stevenson, Robt., Boghead, Galston  
 1909 Stevenson, Wm., Crossbarn, Troon  
 1911 Stewart, John C., Meriswood, Ayr

## Admitted

- 1893 Symington, Thomas, 68 Hope Street, Glasgow  
 1894 Tannahill, Robert D., National Bank Buildings, Kilmarnock  
 1876 Taylor, H., Kaimshill, Hurlford, Kilmarnock  
 1906 Taylor, William, Fortacres, Dundonald  
 1881 Tennant, James, Dundonnat, Craigie Road, Ayr  
 1882 Thornycroft, J. B., Netherplace, Mauchline  
 1886 Tivendale, Wm. D., Burnhouse, Galston  
 1904 Turner, Fred. John, jun., Cessnock, Galston  
 1884 Turner, J. H., Portland Estate Office, Kilmarnock  
 1904 Tyre, James, Templeton, Dundonald  
 1911 Vallance, Robert, Calton, Cumnock  
 1878+ Villiers, F. E., The Shieling, Ayr  
 1887 Wallace, H. R., Cranston Lodge, Ayr  
 1875 Wallace, Robt., Auchinbrain, Mauchline  
 1895 Wallace, William, Cattle Dealer, Mauchline  
 1908 Wardrop, Patrick, Old Garlaiff, Cumnock  
 1897 Watson, Alex., Barboigh, Mauchline  
 1888 Weir, W., of Kildonan, Adamton, Monkton  
 1905 White, John A., Royal Bank, Ayr  
 1880 Whyte, Robert, East Raws, Kilmarnock  
 1882 Willison, Alex., Easterhill, Dalry  
 1908 Wilson, Hugh R., Auchencloigh, Ochiltree  
 1906 Wilson, James, Ashmark, New Cumnock  
 1905 Woodburn, Robt., Whitehill, Hurlford  
 1884 Wyllie, Alex., Holmbyre, Dalry  
 1911 Wyllie, Daniel, Holmes, Dalrymple, Ayr  
 1893 Wyllie, James, Mayfield, Stevenston  
 1908 Young, Alex., Muirhouse, Crosshouse, Kilmarnock  
 1907 Young, Hugh, Newfield Mains, Dundonald  
 1896 Young, H. S. M., Heathfield, Irvine  
 1901 Young, James, Featland, Dundonald  
 1910 Young, John, Skerrington Mains, Hurlford

## BUTE.

- 1870 Allan, James, Balnacoolie, Shiskine, Arran  
 1897 Bannatyne, John, The Hotel, Lamash  
 1907 Brown, William, Shedock Farm, Shiskine, Arran  
 1908 Burns, Marquis of, Mount Stuart, Rothesay  
 1905 Crawford, Peter, Torryllyn, Kilmorie, Arran  
 1897 Crawford, Robert, Glenacorrodale, Lamash  
 1889 Dickie, Wm. P., Cranslagvourty, Rothesay  
 1875 Duncan, James, Mains, Port Bannatyne  
 1897 Fisher, Jas., Grain Merchant, Rothesay  
 1911 Forbes, Alistair Hugh, Bute Estates Office, Rothesay  
 1900 Forsyth, R. W., Corrie, Arran  
 1889 Gilmore, Thomas, Kilchristan The Woods, Rothesay  
 1897 Hunter, William, Glenkiln, Lamash  
 1906 Inglis, Wm., Forester, Cladach, Brodick  
 1902 Lochhead, Thomas, Kilchristan, Rothesay  
 1889 MacAlister, Robert, Kirkcubbin, Rothesay  
 1889 Macdonald, James, Dalry, Rothesay  
 1889 Macdonald, James, Port Bannatyne, Rothesay  
 1878 Macdonald, James, Rothesay



## Admitted

- 1900 Mackay, John, Barone Park, Bute  
 1907 Martin, John G., Brandon, Brodick  
 1902 Martin, Mrs J. G., Brandon, Brodick  
 1906 Montgomery, Alex., Auchinteerie, Rothsay  
 1897 Robertson-Fullarton, A. L. F., of Kilmichael, Brodick (201 Bath Street, Glasgow)  
 1907 Speirs, Alex. C., Clachaig, Kilmorie, Arran  
 1902 Sweet, J. B., Bank of Scotland, Lam-lash  
 1887 Wallace, John, Glenkill, Lam-lash

## LANARK.

- 1897 Aikman, Colonel Thos. R., The Ross, Hamilton  
 1906 Aitkenhead, George, Lochinch, Govan  
 1875 Alexander, Jas., 145 North Street, Glas-gow  
 1908 Alexander, James Y., 19 Hope Street, Glasgow  
 1884 Allan, Alex., Waddiefield, Hamilton  
 1905 Allison, Thomas, Carnwath Mill Farm, Carnwath  
 1905 Alston, James T. R., Hyndford, Lanark  
 1911 Anderson, John, B.Sc., 6 Blythswood Square, Glasgow  
 1909 Anderson, Robert, 53 Glencairn Drive,  
 1870 Andrew, W. J., Banker, Coatbridge  
 1907 Baillie, Robt., Morningside Farm, New Mains  
 1887 Bain, W. P. C., Lochrin Iron Works, Coatbridge  
 1875 Baird, Hugh, c/o Frame & McDonald, 104 West George Street, Glasgow  
 1905 Baird, William, Gallowhill, Carmunnock  
 1908 Ballantyne, James, Blythbank, Dolphinton  
 1905 Ballantyne, James, Straven House, Car-luke  
 1907 Barr, Andrew, Headmuir, Carluke  
 1886 Barr, Duncan C., Factor, Hamilton  
 1903 Barr, James, British Linen Co. Bank, Carluke  
 1908 Barr, William, Burnhead, Carluke  
 1906 Bartleman, Archd., Blythe, Dolphinton  
 1882 Beckett, C. R. (British Oil & Cake Mills, Ltd.), Rockville Oil Mills, Port Dundas  
 1900 Begg, Hugh, V.S., East Kilbride  
 1908 Berry, Reginald A., 6 Blythswood Square, Glasgow  
 1882 Bertram, Major Wm., of Kerswell, Carnwath  
 1906 Black, John, Robertson Mains, Dolphinton  
 1900 Blair, Alex., 25 Keir Street, Pollok-shields, Glasgow  
 1907 Blue, Allan P., 59 Pitt Street, Glasgow  
 1900 Bouglas, Henry Brown, Banker, Car-luke  
 1900 Boyd, Gavin, Newhouse, Lanark  
 1881 Brock, H., V.S., 118 North Street, Glas-gow  
 1906 Brown, Harold G., of Cormiston, Biggar  
 1898 Brown, James, Merryton, Hamilton  
 1906 Brown, Joseph, High Merryton, Lark-hall  
 1896 Brown, Robert, Craighead, Bothwell  
 1906 Brown, William, Auction Mart Co., Ltd., Biggar  
 1898 Brown, Wm. D., Photographer, Lanark  
 1901 Brownlie, John, Garrion Grain Mills, Wishaw  
 1905 Buchanan, James, 65-67 Elcho Street, Graham Square, Glasgow  
 1876 Buchanan, Capt. J. R. G., of Scotstone, Eastfield House, Cambuslang

## Admitted

- 1900 Cadzow, James, Stonehill, Crawford-John, Abington  
 1884 Cadzow, Robt., Weston, Dunsyre, Car-stairs Junction  
 1905 Caldwell, James C., Hollylea, Crayton Road, Govan  
 1897 Cameron, John J. (A. & J. Main & Co.), Clydesdale Ironworks, Possilpark, Glasgow  
 1904 Campbell, James (Campbell Gas Engine Co.), 104 Bath Street, Glasgow  
 1905 Campbell, P. P., Lee Estates Office, Cartland, Lanark  
 1894 Carmichael, M. T., of Eastend, Thank-erton  
 1905 Carnegie, Wm., 47 St Vincent Street, Glasgow  
 1905 Carruthers, Andrew, Nethertown, Auch-enheath, Hamilton  
 1910 Carruthers, Richard B., 62-78 King Street, Tradeston, Glasgow  
 1905 Chapman, Robert, Johnston Farm, Gart-cosh  
 1906 Chapman, William A., Cairngorm, Airdrie  
 1882 Chapman, William W., Commonhead House, Airdrie  
 1889 Clark, Alexander, Todlaw, Lesmahagow  
 1869 Clark, Mathew, 39 Westbourne Gardens, Kelvinside, Glasgow  
 1905 Clark, W. S., Thornhill, Wishaw  
 1898 Clarkson, James, Prett's Mill, Lanark  
 1899 Cochrane, James, Brownside, Strath-aven  
 1890 COLEBROOKS, Lord, of Crawford, Abing-ton  
 1910 Cormack, D. G., Fairlaw, Stewarton Drive, Cambuslang  
 1876 Coubrough, Wm., Low Drumclog, Strath-aven  
 1909 Cowan, H. Hargrave, Dalzell Estates Office, Motherwell  
 1892 Cowie, W. R., 98 Hope Street, Glasgow  
 1905 Craig, A. Blackburn, 97 Maxwell Drive, W., Bellahouston, Glasgow  
 1888 Craig, John, High Floughland, Darvel  
 1884 Cranston, Stuart, 28 Buchanan Street, Glasgow  
 1905 Crompt, John Burns, Clerk of Works, The Palace, Hamilton  
 1906 Cross, P. A. Munro, 19 Hope Street, Glasgow  
 1908 Cross, Wm. C., 19 Hope Street, Glasgow  
 1907 Cruckshank, John Erskine (Crossley Brothers, Limited), 217 St Vincent Street, Glasgow  
 1905 Cumming, James, Grain Merchant, Lanark  
 1897 Cumming, Robert, 151 St Vincent Street, Glasgow  
 1897 Curr, Wm. Henry, W.S., 226 West George Street, Glasgow  
 1894 Davidson, Wm., Gateside, Douglas  
 1895 Dennistoun, A. H. O., of Golfhill, Glas-gow (Glenmore, Aviemore)  
 1890 Dewar, J. C., Park Cottage, Wishaw  
 1905 Dick, John, Carnbroe Mains, Bellahill  
 1884 Dick, John P., c/o McClure, Nalsmith, & Brodie, 77 St Vincent St., Glasgow  
 1899 Dickie, Robert, c/o J. & W. Wallace, 279 Gallowgate, Glasgow  
 1905 Dickie, Wm., sen., Victoria Works, East Kilbride  
 1905 Dickson, Andw., Castlehill, Carmunnock  
 1905 Dickson, John B., Auchren, Lesma-hagow  
 1905 Donald, George, Braehead, Strathaven  
 1904 Donald, John, 36 North Wallace Street Glasgow  
 1905 Douglas, Charles, of Auchlochan, Lesma-hagow

## Admitted

- 1902 Douglas, F. J. B., 21 Caird Drive, Partick  
 1910 Douglas, Peter C., 114 North Street, Charing Cross, Glasgow  
 1906 Duncan, George T. (Tangyes, Ltd.), 111 Hope Street, Glasgow  
 1889 Dunn, Richard, Uddon, Hamilton  
 1869 Dykes, J., jun., 162 Buchanan Street, Glasgow  
 1905 Dykes, Thomas, Priestgill, Strathaven  
 1887 Elliot, William, Auction Mart, Lanark  
 1909 Ewing, Arthur Ramsay, Ph.D., Empire Chemical Works, Carntyne Station, Glasgow  
 1900 Ferguson, Alex., of Clelland, 21 Sandyford Place, Glasgow  
 1897 Ferguson, James, Butcher, St George's Cross, Glasgow  
 1908 Findlater, George, Jerviswood Mains, Lanark  
 1888 Findlay, John, Gonar, Abington, N.B.  
 1884 Findlay, John, Springhill, Baillieston  
 1898 Findlay, M. F., 19 Cadogan Street, Glasgow  
 1910 Findlay, Robert, Easter Cadder, Kirkin-tilloch, Lanarkshire  
 1861 Fleming, Alex., Raith, Bothwell  
 1900 Fleming, Alex., Wolfelyde, Biggar  
 1899 Fleming, And., West Mains, Newbigging, Carnwath  
 1888 Fleming, David, Orchard Cottage, Broomhouse, Glasgow  
 1905 Fleming, Jas., Meadowflat, Thankerton  
 1882 Fleming, James, Muirside, Carmunnock  
 1870 Fleming, J., Meadowbank Cot., Strathaven  
 1905 Fleming, Stephen, Raith Farm, Bothwell  
 1905 Fleming, William, Fisherton, Rutherglen  
 1905 Fleming, William, Corbiehall, Lanark  
 1882 Fleming, William, Windlaw, Carmunnock  
 1908 Forrest, John, Brewshott, Carnwath  
 1906 Forrest, Mat. Harry, Woodhall, Bishopbriggs  
 1858 Forrest, Peter, Woodhouse, Blantyre  
 1907 Forsyth, R. W. Hillend, Robertson, Abington  
 1899 Fraser, D. Speirs, 15 Eglinton Street, Glasgow  
 1899 Fraser, Geo. J. J. H. G., Factor, Dalzell Farm, Motherwell  
 1881 Fraser, M. P., 12 Buchanan Street, Glasgow  
 1877 French, James, Netherton, Abington  
 1905 Galbraith, Adam, Biggarshields, Biggar  
 1906 Galloway, A. W., Molassius Co., Ltd., 128 Hope Street, Glasgow  
 1898 Galloway, Thomas, Balgray House, Kelvin-side, Glasgow  
 1900 Galloway, Wm., Braxfield Road, Lanark  
 —Free Life Member  
 1905 Garraway, Andrew B., Law Muir, East Kilbride  
 1897 Gibson, Richard, Kirkton St., Carlisle  
 1905 Giffen, Andrew, Baltic Chambers, 8 Cadogan Street, Glasgow  
 1905 Giffen, W. R., Baltic Chambers, 8 Cadogan Street, Glasgow  
 1891 Gilchrist, John, Orbliston Mains, Ballshill, Glasgow  
 1905 Gillies, Alex., North Brackenridge, Lesmahagow  
 1877 Gillies, Wm., 28 University Gardens, Glasgow  
 1888 Gilmour, Allan, of Eaglesham, Glasgow  
 1882 Gilmour, Arthur, Crosshill, East Kilbride  
 1905 Gilmour, John, 11 Germiston Street, Glasgow  
 1877 Goff, Dr Bruce, The Lindens, Bothwell

## Admitted

- 1898 Gordon, Henry Erskine, of Aikenhead, Cathcart  
 1905 Goulding, Joseph, Dalpatrick, Carlisle  
 1883 Gow, Andrew, Factor, Wishaw  
 1909 Graham, George, 21 Port Dundas Road, Glasgow  
 1905 Graham, Patrick, Kittochside Farm, East Kilbride, Lanarkshire  
 1873 Grahame, Jas., Western Club, Glasgow  
 1907 Gray, John, New Stevenston, Holytown  
 1867 Greenshields, J., West Town, Lesmahagow  
 1906 Greenshields, James John, of Kerse, Lesmahagow  
 1907 Greenshields, John B., West Town, Lesmahagow  
 1897 Grierson, Adam, New Cross, Strathaven  
 1897 Grieve, R. W., Carnacoup, Douglas  
 1893 Gunn, Edmund J., 188 West George St., Glasgow  
 1883 Gunn, John, 126 Onslow Drive, Dennistoun, Glasgow  
 1884 Haddow, Robert, Castle of Crawford, Abington  
 1906 Hamilton of Dalzell, Lord, Dalzell, Motherwell  
 1881 Hamilton, Alex., Commercial Bank, Trongate, Glasgow  
 1895 Hamilton, O. G. Henderson, of Dalserf, Netherburn  
 1897 Hamilton, D., M.R.C.V.S., Bourtreehill, Hamilton  
 1889 Hamilton, Gavin, B. L. Co. Bank, Lesmahagow  
 1911 Hamilton, Hugh, St Patrick Cottage, Lanark  
 1869 Hamilton, James, Avondale, Albany Drive, Lanark  
 1906 Hamilton, James Brown, Poniel, Douglas  
 1905 Hamilton, John, Deadwaters, Kirkmuirhill  
 1900 Hamilton, John, Mains, East Kilbride  
 1870 Hamilton, John Nisbet, Coultter, Biggar  
 1905 Hamilton, Matthew G., Woolfords, Cobbinshaw  
 1893 Hamilton, Robert, Low Motherwell, Motherwell  
 1905 Hamilton, Samuel, National Bank, Carlisle  
 1897 Hamilton, T. B., M.R.C.V.S., 183 Queen's Drive, Glasgow, S.S.  
 1905 Hamilton, William, Easterseat, Carlisle  
 1905 Hamilton, William, Moat Mains, Lesmahagow  
 1908 Harper, P. Rankin, Permanent Nitrate Committee, 191 West George Street, Glasgow  
 1871 Harris, William, 1 Edmiston Drive, Ibrox, Glasgow  
 1897 Hart, F. Campbell, C.E., 184 St Vincent Street, Glasgow  
 1897 Hastie, David, Stonefield Farm, Blantyre  
 1905 Hastie, John, Eddlewood, Hamilton  
 1905 Hastie, Peter, Stonefield, Blantyre  
 1908 Hay, Alex. Beith, Kelvindock Gasworks, Maryhill  
 1905 Henderson, Joseph, Melkie Jumps, Thorntonhall  
 1906 Henderson, R. Holmes, Cornsilloch, Netherburn, Hamilton  
 1897 Hill, Thos., & Dorne Garraway, Maryhill, Glasgow  
 1901 Hope, Thos., South Brownhill, Strathaven  
 1897 Hope, Robert (R. & S. Fleming & Co.), 21 Commercial, Glasgow

## Admitted

- 1904 Howie, Robt., 21 Hope Street, Glasgow  
 1905 Hunter, Alex. N., 89 Mitchell Street, Glasgow  
 1889 Hunter, William, Craighead, Abington  
 1910 Inrie, William G., Blackhill, Maryhill, Glasgow  
 1878 Inch, John, Howburn, Walston, Biggar  
 1911 Irvine, T. J., Coshnock Farm, Millerston  
 1899 Jack, Robt., Implement Agent, Hyndford Place, Lanark  
 1908 Jack, Wm. C., Robiesland, Lanark  
 1909 Jackson, James, 80 Gallowgate, Glasgow  
 1909 Jackson, James G., 144 St Vincent Street, Glasgow  
 1900 Jardine, W. C., 20 Douna Terrace, North Kelvin, Glasgow—*Free Life Member*  
 1903 Johnston, George, jun., Craig Park, Kennedy Drive, Airdrie  
 1905 Johnston, James, Allerstocks, Strathaven  
 1908 Johnstone, Robt., jun., Turnberry, Cardonald, nr. Glasgow  
 1898 Kennedy, M. E., 28 Kingsborough Gardens, Kelvin, Glasgow  
 1899 Kerr, Alex. Leopold, 1 Westbank Quadrant, Hillhead, Glasgow  
 1888 Kerr, James, Bloomergate, Lanark  
 1905 Kerr, Matthew, Estate Office, Hamilton  
 1902 Kerr, Norman M., 13 Atholl Gardens, Kelvin, Glasgow  
 1857 Kerr, Robert, 1 Westbank Quadrant, Hillhead, Glasgow  
 1899 Kerr, Thomas B. B., 1 Westbank Quadrant, Hillhead, Glasgow  
 1901 Kerr, Wm. Holmes, 79 St George's Place, Glasgow  
 1900 King, John W., yr. of Campsie, Stanmore, Lanark  
 1906 Kneke, Hans F., c/o Nutrimol Feed Co., 72 Park Street, Kinning Park, Glasgow  
 1907 Kirkwood, Charles, F.S.I., 67 West Regent Street, Glasgow  
 1891 Laidlaw, John, 98 Dundas Street, Glasgow, S.S.  
 1882 Lamberton, Andrew, Sunnyside Works,  
 1884 LAMINGTON, Lord, Lamington House  
 1897 Langton, John, 8 Blairbeth Drive, Mount Florida, Glasgow  
 1895 Lawrie, James, West Newton, Strathaven, Lanarkshire  
 1896 Lawrie, John M., 204 Elliot Street, Glasgow  
 1904 Leadbetter, Thos. G., of Stobbesside, Strathaven  
 1898 Leiper, Robert, Yarbent, Strathaven  
 1872 LOCKHART, Sir S. M., of Lee and Carnwath, Birt, Lanark  
 1906 Logan, John, 197 Dumbarton Road, Glasgow  
 1898 Logan, Robert J., Newmains, Carnwath  
 1911 Lohar, J., Lochyock, Thankerton  
 1885 M'Alpine, A. N., Glasgow and West of Scotland Technical College, 6 Blythswood Square, Glasgow—*Botanist to the Society*  
 1907 M'Arthur, James C. C., Nunnerie, Abington  
 1905 M'Arthur, John, 202 Hunter Street, Glasgow  
 1868 M'Oall, Principal J., Veterinary College, Glasgow  
 1906 MacColl, Duncan, 80 Paisley Road, West, Glasgow  
 1899 M'Cowan, Robert, Bank of Scotland, Strathaven  
 1899 M'Culloch, David, Th nn, Forth, Lanarkshire

## Admitted

- 1902 M'Cutcheon, James, F.C.S., 6 Blythswood Square, Glasgow  
 1905 M'Feat, John, Abbotshaugh, Pollokshields, Glasgow  
 1897 MacGregor, James (P. & R. Fleming & Co.), Argyle Street, Glasgow  
 1910 M'Gregor, James, Garrison Grain Mills, Wishaw  
 1872 M'Indoe, James, Stromecraig, Dunoon  
 1884 M'Intosh, James, 6 Barrington Drive, Glasgow  
 1891 M'Keich, William, Johnston, Gartcosh  
 1896 M'Kinlay, Robert, Hillhouse, Sandilands, Lanark  
 1878 M'Lachlan, Colin, 3 Morriston Gardens, Bank Street, Cambuslang  
 1905 M'Lean, Arch., Midtown of Blackwood, Lesmahagow  
 1888 MacLellan, Robert, Conservative Club,  
 1900 M'Leod, William, Rosebank, Maryhill  
 1882 M'Neillage, A., 98 Hope Street, Glasgow  
 1896 M'Neill, John, 1 Great Western Terrace, Glasgow  
 1875 M'Pherson, D., Ardlarach, Mount Vernon, N., Glasgow  
 1906 M'Quat, W. W., V.S., Biggar  
 1906 M'Sorley, P., 44 Jamaica Street, Glasgow  
 1879 Main, R. R. (A. & J. Main & Co.), Possil Park, Glasgow  
 1900 Mair, John, Carrick Lodge, Mount Vernon, Lanarkshire  
 1904 Maltman, W. P., 19 Hope Street, Glasgow  
 1899 Marshall, Arch., Auctioneer, Carlisle  
 1889 Marshall, James, Airbles, Motherwell  
 1906 Marshall, Richard, Whitecraighead, Cleland, Motherwell  
 1906 Martin, James, Burnside, Strathaven  
 1906 Martin, John Douglas, 19 Hope Street, Glasgow  
 1905 Maxwell, David, Clydesdale Hotel, Biggar  
 1906 Meikle, James, Netherlee Farm, Lanark  
 1909 Meikle, John, Corramore, Sandilands, Lanark  
 1911 Meikle, Thomas, Corra Farm, Sandilands, Lanark  
 1905 Meikle, Thomas, Farms, Glassford, Strathaven  
 1884 Millar, John, 118 Queen Street, Glasgow  
 1892 Millar, John, Fern Hill, Cathkin, Rutherglen  
 1904 Miller, J. C., North of Scotland and Town and County Bank, Ltd., 67 St Vincent Street, Glasgow  
 1906 Milne, James, Carstairs Mains, Carstairs Junction  
 1907 Mitchell, David, 24 St Vincent Place, Glasgow  
 1905 Mitchell, James, Muirhouse, Kirkmuirhill  
 1894 Mitchell, John, 18 Shaftesbury Street, Glasgow  
 1888 Mitchell, Robt., M.R.C.V.S., 18 Shaftesbury Street, Glasgow  
 1894 Mitchell, Robert, jun., 18 Shaftesbury Street, Glasgow  
 1905 Mitchell, William, Hazelside, Douglas  
 1905 Mitchell, Thomas, Nethanfoot, Crossford, Carlisle  
 1905 Montgomery, John, Dalsert Estate Office, Netherburn  
 1898 Moore, Wardrop, yr. of Greenhall, Blantyre  
 1875 Morton, J., Whelphill, Abington  
 1905 Morton, James, East Dykes, Strathaven  
 1905 Motherwell, And., Hay and Grain Merchant, Gorbals, Glasgow

## Admitted

1906 Moyes, John, 115 Bothwell Street, Glasgow  
 1906 Muirhead, John, Wellington Terrace, Lanark  
 1874 Muirhead, William, Holmhill, Uddingston  
 1905 Murdoch, Alex., C.A., 94 Hope Street, Glasgow  
 1905 Murdoch, James, Haughhead, Uddingston  
 1875 Murdoch, John, Carntyne, Shottleston  
 1905 Murdoch, Robt., West Hallside, Newton, Glasgow  
 1898 Murdoch, William, 8 Eglinton Lane, Glasgow  
 1894 Murray, James, Low Ploughland, Darvel  
 1905 Murray, Joshua, Parkhall, Douglas  
 1874 Murray, Robert G., of Spittal, Biggar  
 1903 Murray, T. B., Heavyside, Blackwood, Biggar  
 1904 Myles, A. W., Town Clerk, Glasgow.  
 1875 Napier, John S., of Lethame, Strathaven  
 1867 Neilson, William, Bank of Scotland, Bellshill  
 1898 Nelson, T. C., Live Stock Agent, Bellgrove Street, Glasgow  
 1889 Newbigging, Thomas, 2 James Gray Street, Langside Terrace, Glasgow  
 1897 NEWLANDS, Lord, Mauldslee Castle, Carlisle  
 1900 Pate, James, West Browncastle, Strathaven  
 1905 Pate, Thomas, Muirland, Lesmahagow  
 1906 Paterson, George Rankin, Drumalbin, Thankerton  
 1882 Paterson, John, Caudy Cottage, Biggar  
 1906 Paterson, M., 40 Houldsworth Street, Glasgow  
 1899 Paterson, Robert, Crossburn House, Douglas, Lanark  
 1908 Paterson, Robert, Greenshields, Carnwath  
 1896 Paterson, William, Glentagart, Douglas  
 1884 Paterson, Wm., Grange, Thankerton  
 1885 Paton, James, Glencaple, Abington  
 1905 Pearson, Douglas, Rock Villa Oil Mills, Port Dundas  
 1909 Pengelly, Charles C., 57 Oswald Street, Glasgow  
 1905 Pettigrew, James, jun., Bogside, Newmains  
 1889 Pollock, James, V.S., Hamilton  
 1884 Pollock, W., Yoker Mains, Glasgow  
 1908 Pooley, John S., 69 M'Alpine Street, Glasgow  
 1907 Prentice, Archd., Belstone, Carlisle  
 1900 Prentice, James, Carlisle, Uddingston  
 1899 Prentice, Thomas, Saddler, Carlisle  
 1910 Rankin, James Maonaughton, 110 Bath Street, Glasgow  
 1898 Rankin, William B., of Cleddans, Airdrie  
 1898 Reid, C., Photographer, Wishaw  
 1905 Reid, Dr John, Greenhill Cottage, Forth, Lanark  
 1901 Rennie, Jos., Hillend, Possil, Maryhill  
 1905 Renwick, Andrew, Buchley Farm, Bishopbriggs  
 1882 Renwick, Robert, Buchley, Bishopbriggs  
 1905 Retson, John, Langside, Lanark  
 1904 Richard, J. M. M., Wiston Lodge, Lamington  
 1900 Riddell, Matthew, 488 Gallowgate, Glasgow  
 1905 Ritchie, Alex., 8 Croy Place, Glasgow  
 1905 Robb, Andrew, sen., F.R.C.V.S., 16 Ward Street, Glasgow

## Admitted

1905 Robb, William, F.R.C.V.S., 16 Ward Street, Glasgow  
 1900 Robley, W. P., 100 High John Street, Glasgow  
 1898 Russel, William, Longlees, Biggar  
 1894 Russell, Alexander, 54 West Nile Street, Glasgow  
 1882 Russell, James, Calderpark, Baillieston  
 1897 Russell, John, Cleghorn Mill, Lanark  
 1907 Russell, Robt., Walston Mansion, Dun-syre, Carstairs Junction  
 1889 Russell, Thos., Redlawood, Newton, Lanarkshire  
 1875 Sanderson, James, West Yard Houses, Carnwath  
 1907 Scott, George S., Swinstie Farm, Cleland  
 1905 Scott, James, Easter Cadder Farm, Kirkintilloch, Lanarkshire  
 1878 Scott, Jas., Garrison Tower, Wishaw  
 1885 Scott, John, jun., Auchinloch, Lenzie  
 1908 Scott, Thomas, Bogside, Carlisle  
 1905 Scott, William, Greenhills, East Kilbride  
 1875 Scott, William, Priestfield, Blantyre  
 1905 Scouller, John, 117 Drury Street, Glasgow  
 1910 Shand, James B., 20 Renfrew Street, Glasgow  
 1906 Shanks, Gavin, East Shawhead Farm, Whifflet  
 1907 Shanks, James, Caldercruix Farm, Caldercruix  
 1905 Shearer, Arch., Highflat, Carmunnock  
 1897 Simpson, Alex. M., Whitecross Farm, East Kilbride  
 1905 Simpson, Kerr A., B.L., of The Hill, Lesmahagow  
 1877 Sked, George, Royal Bank, Wishaw  
 1894 Sleigh, C. W., Estate Office, Blackwood, Lesmahagow  
 1907 Sloan, Wm. A. (R. Munro & Co.), 13 Queen Street, Glasgow  
 1889 Smellie, Jas., Courington, Motherwell  
 1878 Smith, Wm., 7 Balmoral Crescent, Rutherglen  
 1911 Somerville, James P., Muirhouse, Carnwath  
 1897 Somerville, Thos. Purdie, Muirhouse, Carnwath  
 1898 Sommerville, John L., 114 Parson St., Glasgow  
 1909 Soutar, J. C. (Shanks, Ltd.), Clutha Place, Uddingston  
 1888 Stalker, Donald, Mossend Farm, Mossend, Glasgow  
 1900 Stark, Thomas, Littlehills, Bishopbriggs  
 1891 Steel, Matthew Taylor, 185 Buchanan Street, Glasgow  
 1891 Stein, A. H., of Kirkfield, Lanark  
 1892 Stephen, D. K., 261 Kenmure Street, Pollokshields  
 1889 Steven, Hugh, Milton Iron Works, Glasgow  
 1911 Stevenson, James Laing, of Moat, Lesmahagow  
 1904 Stewart, David, Blantyre Park, High Blantyre  
 1869 Stewart, D. W., Cartland, Lanark  
 1881 Stewart, R. K., of Murdostoun, Newmains  
 1905 Stobo, Alex., Bonmahon, Strathaven  
 1900 Strang, William, 141 West George Street, Glasgow  
 1908 Struthers, Francis, Broomfield Farm, Netherburn, Hamilton  
 1906 Struthers, Miss Julia F., Auchinloch, Glasgow, Strathaven  
 1906 Struthers, James R., Strathaven, Dundee, Dundee  
 1899 Struthers, James C., 28 Bath Street, Glasgow

## Admitted

- 1889 Stuart, Col. Harington, of Torrance,  
East Kilbride  
1906 Swan, James, Overburns and Loanhead,  
Lamington  
1905 Taylor, John, M.R.C.V.S., Cathkin,  
Rutherglen  
1906 Telford, Maxwell, Crown Engineering  
Co., 87 and 89 Crown Street, Glasgow  
1905 Templeton, Wm., of Torland, Netherburn  
1910 Tennant, Robert, dairyman, Brandon  
Bridge, Hamilton  
1911 Tennant, Thomas, Dyke, Douglas Water  
1897 Tervit, John, Cranston Hill, Carlisle  
Road, Lanark  
1879 Thiem, A. M., Windsor Hotel, St Vincent  
Street, Glasgow  
1889 Thomson, A. J., of Huntfield, Biggar  
1910 Thomson, E. J., Western Club, Glasgow  
1882 Thomson, Seton, 27 St Vincent Place,  
Glasgow  
1878 Thomson, Wm., 184 Pitt Street, Glasgow  
1875 Thomson, W. G., 118 Queen Street,  
Glasgow  
1905 Todd, Mrs George, 18 Park Circus,  
Glasgow  
1905 Todd, George, 18 Park Circus, Glasgow  
1900 Torrance, Alex., Crookedstone, Quarter  
1910 Trotter, A. M., M.R.C.V.S., Moore  
Street Abattoir, Glasgow  
1896 Turnbull, Wm., Daldowie, Broomhouse,  
Glasgow  
1882 Vere, J. C. Hope, of Blackwood, Lesma-  
hagow  
1905 Waddell, Alex., 87 Wesleyan Street,  
Glasgow  
1897 Walker, William Hamilton, Cardarroch  
House, Airdrie  
1907 Wallace, Duncan, Graham Square, Glas-  
gow  
1898 Wallace, Robt., Graham Square, Glasgow  
1879 Wallace, W. (John Wallace & Sons),  
Graham Square, Glasgow  
1907 Wallace, Wm. B., Graham Square, Glas-  
gow  
1897 Wallace, Wm., Bellsfield House, Pollok-  
shields, Glasgow  
1910 Wands, Wm., Wards Lodge, Hamilton  
1906 Warnock, Robt., Netherholm Farm,  
Strathaven  
1910 Warren, D. D., 25 University Garden,  
Glasgow  
1888 Watson, G. M., Baillaws, Lamington  
1884 Watson, Robert, Culterallars, Biggar  
1899 Watson, Wm., M.D., East Browncastle,  
Strathaven  
1900 Watt, Thomas, Drumgray, Airdrie  
1905 Weir, Charles, Implement Works, Strath-  
aven  
1877 Weir, James, Sandilands, Lanark  
1884 Weir, William C., c/o Weir & Robertson,  
7 Royal Bank Place, Glasgow  
1905 Williamson, William, Belzeshill, Bellshill  
1896 Willison, John, Parisholm, Douglas  
Wilson, Alexander S. (Mills & Co.,  
Leicester), 67 Waterloo Street, Glas-  
gow  
1910 Wilson, Andrew, Ladyacre Road, Lanark  
1888 Wilson, James, Westburn, Cambuslang  
1910 Wilson, James Adam, Westburn Farm,  
Cambuslang  
1899 Wilson, Sir John, of Airdrie, Bart.,  
Airdrie  
1906 Wilson, Thomas M., Nether Abington,  
Abington  
1908 Wilson, Wm., Water Meetings, Abing-  
ton  
1907 Wingate, David, Castlehill Farm, Wishaw  
1889 Wood, Alex., Woodlands, Partick  
1877 Wragg, Chas., 16 Lawrence St., Partick,  
Glasgow

## Admitted

- 1882 Wright, R. Patrick, 6 Blythswood Sq.,  
Glasgow—Free Life Member  
1905 Young, James, Greenfield, Strathaven  
1911 Young, William, St Leonards St., Lanark  
1905 Yuill, Thomas, Greathill, Strathaven

## RENFREW.

- 1906 Adam, John, East Walkinshaw, Renfrew  
1905 Alexander, William, Dripps Mill Farm,  
Busby  
1884 Allan, David, M.R.C.V.S., Clarkston,  
Busby  
1905 Allan, David, Inches Farm, Eaglesham  
1906 Baird, W. A., Erskine, Bishopton  
1895 Ballantyne, William, Busbyside, Busby  
1897 Blackwood, Walter, Aitkenhead, Cath-  
cart  
1886 Blair, James, Bankfoot, Inverkip  
1910 Blanche, David, Heathfield, Greenock  
1889 Blythswood, The Rev. the Lord, Blyths-  
wood, Renfrew  
1905 Bowie, Walter, Marymaur, Paisley  
1897 Brown, Peter S., Auchengrange, Loch-  
winnoch, Renfrewshire  
1905 Brown, Wm., Craigton, Bishopton  
1884 Bryce, David, Abbots Inch, Paisley  
1906 Buchanan, George, Hunterhill Farm,  
Paisley  
1905 Clark, David, High Craig, Eaglesham  
1905 Clark, James, High Craig, Eaglesham  
1906 Clark, James, Netherlea Farm, Cathcart  
1905 Clark, Robt., Hazelden, Newton Mearns  
1884 Clark, Wm., Netherlea Farm, Cathcart  
1910 Clement, Thomas, Netherlton, Mearns,  
Renfrewshire  
1898 Coats, Andrew, Ferguslie, Paisley  
1888 Coats, Sir Thos. Glen, Bart., of Ferguslie  
Park, Paisley  
1897 Collins, Major Hugh Brown, of Auchin-  
bothie, Kilmalcolm  
1884 Crawford, John W., Denniston, Greenock  
1894 Orlinton, A. K., Estates Office, John-  
stone  
1881 Cross, David, Ingliston, Bishopton  
1897 Cross, Thomas, Langbank, Renfrewshire  
1880 Cuninghame, J. C., of Craigends, John-  
stone  
1904 Davie, James, Bogton, Cathcart  
1894 Dawson, Robert, Dovehill, Pollokshaws  
1906 Farquhar, Mrs Hilda Harrington, St  
Margaret's, Bridge of Weir  
1875 Ferguson, Peter, Croft-an-righ, Renfrew  
1900 Fleming, Andrew, Threepland, Eagles-  
ham  
1897 Fleming, Thomas, Leaburn, Giffnock  
1888 Fleming, William, of Park, Renfrew  
1872 Forsyth, James, Ironmonger, Kilmal-  
colm  
1897 Fulton, Thomas, Shiels, Renfrew  
1905 Gardner, James, Hillington, Paisley  
1906 Gardner, Thomas, Janeville, Barrhead  
1905 Gemmell, Alexander, Humble, Newton  
Mearns  
1900 Harvie, Alexander, Shieldhill, Newton  
Mearns  
1905 Harvie, Robert, Darnley Mill, Nitshill  
1905 Holmes, John, Glenshinnoch, Bishopton  
1905 Holmes, John A., Formaken, Erskine  
1906 Holmes, Peter, Friestside, Kilmalcolm  
1905 Holmes, William, jun., Gladstone, Kil-  
barchan  
1906 Holmes, William, Hairlaws, Bridge of  
Weir  
1897 Houston, Alex. C., Marylea, Calside,  
Paisley  
1906 Houston, Gavin, Greenhill, Elderslie  
1894 Houston, William F., V.S., Paisley

## Admitted

- 1875 Houstoun, Geo. L., of Johnstone, Johnstone  
 1897 Howie, William, Carnwadrick, Thornliebank  
 1894 Hunter, Andrew, Howwood, Renfrew  
 1884 Jackson, Jas., Carolside, Busby  
 1897 Jackson, John, Whittemoss, Bishopton  
 1897 Kidston, A. Glen, yr. of Finlaystone, Langbank, Renfrewshire  
 1906 Kyle, Matthew, Barnhill, Johnstone  
 1906 Laidler, James, 8 Park Terrace, Paisley  
 1906 Lambie, George W., Pilmuir Farm, Newton Mearns  
 1905 Lambie, John, jun., Langton, Newton Mearns  
 1905 Lambie, John, Patterton, Thornliebank  
 1895 Lambie, James, Bonnyton Moor, Eaglesham  
 1897 Lang, Alex. A., Garneyland, Inchinnan, Renfrew  
 1906 Lang, Benj., 94 High Street, Paisley  
 1908 Linton, Walter, Craig Rannoch, Campersdown Road, Scotstoun  
 1882 Locke, Matthew, Nether Kirkton, Neilston  
 1875 Love, Alexander, Margaret's Mill, Kilmacollm  
 1907 MacBean, S., Land Steward, Erskine, Bishopton  
 1905 M'Coll, Neil, Craighends Home Farm, Johnstone  
 1905 M'Crone, John, The Wood, Thornliebank  
 1875 Macdowall, H., of Garthland, Lochwinnoch  
 1906 Macfarlane, Jehn, Kilgraston, Bridge of Weir  
 1905 M'Gee, Walter, Bridge Street Grain Mills, Paisley  
 1897 M'Kay, John, Crossmill, Barrhead  
 1884 M'Kie, H. B., Freeland, Bishopton  
 1906 M'Lachlan, John, Glenburn, Gourcock  
 1896 M'Meeken, James, Auldhouse, Pollokshaws  
 1905 M'Millan, William, Orchard, Giffnock  
 1905 M'Neillage, Robert Arden, Thornliebank  
 1895 Marshall, Robert C., Bruntshields, Kilbarchan  
 1904 Mather, James B., Kirkhill, Newton Mearns  
 1910 Maxwell, Miss Mary Alexandra, of Lawmarnock, Bridge of Weir  
 1889+ Maxwell, Sir John Maxwell Stirling, of Pollok, Bart., Pollokshaws  
 1905 Michie, David K., Elderslie Estates Office, Renfrew  
 1905 Miller, James, Flenders, Newton Mearns

## Admitted

- 1904 Munro, John M., Mount View, Giffnock  
 1905 Munro, Robert, Polnoon, Eaglesham  
 1899 Mure, Major William, of Caldwell, Glasgow  
 1890 Murray, J. Campbell, Hagg's Castle, Pollokshields  
 1900 Orr, Geo. W., Cowdonhall, Neilston  
 1867 Pelle, H. R. B., Mansion House, Greenock  
 1897 Pollock, John, Springside, Howwood  
 1878 Pollok, John, Paper Mill, Langside  
 1888 Pottie, Alexander, V.S., Paisley  
 1908 Pottie, John E., St James Place, Paisley  
 1906 Raesside, Andrew, Craigend Farm, Newton Mearns  
 1905 Reid, John, Castle Farm, Newton Mearns  
 1882 Reid, Robert, Writer, Lochwinnoch  
 1888 Reid, William, Wester Kittochside, Busby  
 1905 Renfrew, Andrew, Barrance, Newton Mearns  
 1905 Renfrew, William, jun., Burnhouse, Newton Mearns  
 1900 Renfrew, William, Ferguslie Farm, Paisley  
 1905 Rennie, Alex., Wellmeadow, Paisley  
 1896 Renshaw, Sir Charles Bine, Bart., of Barrochan, Houston  
 1868 Riddell, David, Blackhall, Paisley  
 1856 Robertson, John, 22 Forsyth Street, Greenock  
 1882 Scott, James B., Ryeraes, Johnstone  
 1879 Shaw-Stewart, Sir Hugh, of Greenock and Blackhall, Bart., Ardgowan, Inverkip  
 1891 Speirs, Alex. Archibald, of Elderslie, Houston House, Johnstone  
 1905 Steven, Robert, Priesthill Farm, Nithhill  
 1905 Steven, Thos., Wardhill, Nithhill  
 1908 Stewart, James, Carrot, Eaglesham  
 1905 Stewart, John P., Thornley Park, Paisley  
 1905 Strang, Geo., Leggatston, Nithhill  
 1905 Strang, Wm., Upper Darnley, Barrhead  
 1880 Taylor, William, Park Mains, Renfrew  
 1900 Watson, Alexander, Greenfield, Eaglesham  
 1906 Whyte, John, Nether Craighends, Johnstone  
 1894 Wilson, James, Boghall, Houston  
 1910 Wilson, Robert, Craig of Neilston, Neilston  
 1868 Wilson, Robert, Manswraes, Bridge of Weir  
 1905 Young, David, Rysland, Newton Mearns  
 1888 Young, R. C., Netherfield, Johnstone  
 1905 Young, William, Haugh Farm, Nithhill

## 2.—PERTH DISTRICT.

## EMBRACING THE

COUNTIES OF FIFE, FORFAR (WESTERN DIVISION), KINROSS,  
AND PERTH (PERTH SHOW DIVISION).

## FIFE.

Admitted  
1902 Abbie, Robt., Anfield Farm, Largo, Fife  
1900 Adamson, David, Balmullo, Leuchars  
1909 Aird, Wm., Colton of Pittencreeff, Dunfermline  
1883 Aitken, George Lewis, Boglilly, Kirkcaldy  
1904 Allan, David, Southfod, Dunfermline  
1911 Allan, James, Donibristle Home Farm, Aberdour  
1888 Anderson, David A., 80 Crossgate, Cupar-Fife  
1905 Anderson, J. L., Town Clerk, Cupar-Fife  
1904 Anderson, John, Newbigging of Ceres, Cupar-Fife  
1911 Anderson, Robt., G., M.R.C.V.S., Cupar-Fife  
1911 Anderson, W., M.R.C.V.S., Pittenweem  
1892† Anstruther, Sir R., of Balcaskie, Bart., Pittenweem  
1885 Anstruther-Duncan, Mrs C. H. A., of Naughton, Dundee  
1911 Armit, John, Newtonhall, Kennoway  
1882 Arnot, David, Friarton, Newport, Fife  
1900 Arnot, David, jun., Friarton, Newport, Fife  
1909 Arnot, John Sturrock, Friarton, Newport, Fife  
1900 Arnot, Patrick, Moonzie, Cupar-Fife  
1886 Arnot, Thomas, Newton of Lathrisk, Falkland  
1894 Auchmuty, George, Craighead, Crail  
1884 Auchterlonie, James, Leckerstone, Dunfermline  
1864 Bain, James, Burnside, St Andrews  
1878 Baird, William, of Elie, Fife  
1911 Balfour, Douglas, Boglilly Rd., Kirkcaldy  
1884 Balfour, Edward, of Balbirnie, Markinch  
1890 Balfour, Francis, of Fernie, Fernie Castle, Collesie  
1900 Balfour, James, Upper Largo, Largo  
1898 Balfour, William, Ovensstone, Pittenweem  
1871 Ballingal, Neil, Sweetbank, Markinch  
1908 Ballingall, George, Newton, Wormit, Dundee  
1861 Ballingall, John, Dunbog, Newburgh  
1890 Banks, James, Pitteddie, Kirkcaldy  
1911 Barclay, Andrew, Craigmend, Kinglassie  
1900 Barclay, Patrick, Manorleys, Lochgelly  
1911 Barclay, Robert, Redwells, Kinglassie  
1886 Baxter, Edward Correl, of Teasses, Largo  
1911 Bayne, John, Murcockhall, Dunfermline  
1900 Beath, Thomas, Farmlands, Leslie  
1871 Belfrage, A. W., J. P., C. E. (of Colliston, Kinross-shire), Earlsdonwe, Elie  
1898 Bell, George, Lundin Mill, Largo  
1880 Bell, John, Balboothie, Kilconquhar

Admitted  
1903 Bell, John C., Randerston, Crail  
1893 Bell, P. A., Fusk, Leuchars  
1897 Bell, Robert, Upper Kenley, Boarhills, St Andrews  
1877 Bennet, Arthur, Scotland Wells, Leslie  
1899 Bennet, David, Merchant, Saline, Dunfermline  
1911 Berridge, Percival, Bowhouse, Wemyss  
1896 Berry, William, of Tayfield, Newport, Fife  
1898 Berwick, Andrew, of Hayston, Leuchars  
1904 Berwick, John, Barbarafield, Cupar-Fife  
1898 Berwick, P. W., Ardross, Elie  
1909 Bethune, Major H. A., of Mountquhanie, Cupar-Fife  
1898 Beveridge, Chas. H., Crombie, Dunfermline  
1862 Beveridge, George, Kirkcaldy  
1881 Beveridge, William, jun., Torry, Newmills, Fife  
1883 Black, James, Tullybreck, Markinch  
1911 Black, William, Charlestown Lime Works, Dunfermline  
1900 Blair, David, Littleinch, Wormit  
1889 Blyth, James, Logie, Cupar-Fife  
1895 Bonthron, James, Hayfield, Kirkcaldy  
1911 Bonthron, William, Forthar Mill, Freuchie  
1911 Bowden, William, Broomeside, Crossgates  
1911 Bowman, Archibald, Balgonie, Cardenden  
1899 Bowman, David W., Balcormo, St Monance  
1887 Bowman, George M., of Logie, Cupar-Fife  
1911 Brodie, Robert, B., 78 Church Street, Cowdenbeath  
1902 Brown, Alex., Inchvarrie, Collinsburgh  
1911 Brown, Andrew, Kincaig, Elie  
1908 Brown, David, Pinkerton, Crail  
1894 Brown, Hugh, Colton Mains, Dunfermline  
1911 Brown, John, Glentarkie, Strathmiglo  
1911 Buchanan, Donald, Butcher, Elie  
1897 Burns, A., Grange, Dunfermline  
1911 Burns, Peter D., Gillet, Dunfermline  
1911 Burns, Robert, Grange, Dunfermline  
1906 Buttercase, David L., Uthrogie, Cupar-Fife  
1906 Butters, James, Masterton, Dunfermline  
1901 Cairns, James, Abercrombie, St Monance, Fife  
1904 Cairns, James, Rennyhill, Anstruther  
1904 Cairns, Wm. Roger, Cambo Farm, Crail  
1911 Calder, John W., Corston Mill, Strathmiglo  
1905 Cameron, James, Tayside, Newburgh, Fife

- Admitted  
 1906 Cameron, Robt., Balmeadowside Farm, Collessie  
 1899 Campbell, Duncan, Elie  
 1902 Campbell, John T., jun., Starr Farm, Cupar-Fife  
 1887 Campbell, Colonel, Westwood House, Cupar-Fife  
 1905 Carstairs, John, Carnbee, Pittenweem  
 1869 Carswell, David, Blacketyside, Leven  
 1885 Carswell, J. H., Straiton, Leuchars  
 1868 Cartwright, T. R. B. Leslie Melville, Melville House, Ladybank  
 1886 Cathcart, James T., of Pitcairnie, Dunbog House, Newburgh  
 1889 Cheape, Mrs. of Wellfield, Strathmiglo  
 1901 Cheape, G. R. H., Wellfield, Gateside, Fife  
 1881 Cheape, J., of Lathockar, Straththyrum, St Andrews  
 1879 Christie, F. W., Castlefield, Cupar-Fife  
 1890 Christie, James M., Morton, Tayport  
 1874 Christie, John, Kirktonbarns, Tayport  
 1889 Clark, Alex., Chestnuts, Lundin Links  
 1905 Clark, Alexander, Newton, Markinch  
 1900 Clark, William, Wester Bogie, Kirkcaldy  
 1871 Clark, Wm., Roskellian, Cupar-Fife  
 1905 Clement, D. W., East Picklerie, Anstruther  
 1894 Clement, Jas., Balaithly, St Andrews  
 1894 Clement, John, North Dron, Dairsie, R.S.O.  
 1882 COCHRANE, Hon. Thomas, Crawford Priory, Springfield  
 1892 Corstorphine, J. E. E., Inchyre Abbey, Newburgh, Fife  
 1905 Craig, William, Couston, Aberdour, Fife  
 1905 Cranra, Charles J., Strathedew, Ladybank  
 1911 Crawford, David, Sweethome, Ladybank  
 1907 Crawford, Kenneth H., Balcarres Estate Office, Colinsburgh  
 1901 Crichton, Charles J. M. M., Lathrisk, Ladybank  
 1894 Crichton, Jas., Boyne House, Ladybank  
 1901 Cruickshank, Peter F., Balcormo Mains, Largo  
 1908 Cunningham, W. G., Dalachy, Aberdour, Fife  
 1879 Cunningham, David, Dalachy, Aberdour, Fife  
 1879 Cunningham, John G., Burntisland  
 1911 Cunningham, Thomas, Burntisland  
 1881 Currer, Peter, Grain Merchant, Kirkcaldy  
 1906 Dalziel, T. Kennedy, Nether Kenneddar, Saline, Fife  
 1901 Dand, John E., Links, Kirkcaldy  
 1896 Davidson, James Scott, of Cairnie, Colinsburgh  
 1899 Davidson, Peter, East Craigfoodie, Dairsie, R.S.O.  
 1896 Davidson, Thos., Branxton and Cowden-laws, Dysart  
 1911 Dickie, Alex. S., Grahamstone, Leslie  
 1894 Dickie, Alfred, Devon, Kennoway  
 1907 Dickie, Henry, Seafeld, Inverkeithing  
 1911 Dickie, John, Kettle Farm, Kingskettle  
 1899 Dingwall, Andrew, Catpille, Anstruther  
 1898 Dow, James F., Muirton, Kirkcaldy  
 1907 Drybrough, D., Freuchie Mill, Freuchie  
 1907 Dryburgh, Archd., Kirklandhill Farm, Methil, Fife  
 1884 Dun, George, Woodmill, Auchtermuchty  
 1878 Duncan, Alexander, Auchtermuchty  
 1888 Duncan, John, of Kirkmay, Craill  
 1871 Duncan, John, Easter Barmyouth, St Andrews  
 1898 Duncan, Robert, Craigfoodie, Dairsie, R.S.O., Fife  
 1911 Easson, Adam, Maryhill, Charlestown
- Admitted  
 1909 Easson, Joseph, West Pitcoorthie, Dunfermline  
 1897 Edie, Harry Hay, Cornceres, Anstruther  
 1911 Elder, Archibald, Grain Merchant, Dunfermline  
 1881 Elder, Hugh, Dunfermline  
 1875 ELGIN and KINCARDINE, K.G., the Earl of, Broomhall, Dunfermline  
 1898 ERASKINE, Sir F. William, of Cambo, Bart., Kingsbarns  
 1911 Erskine, John, Myrend, Cairneyhill  
 1908 Fair, Alex., Annfield, Crossgates, Dunfermline  
 1892 Fair, Alex., Fratis Farm, Leven  
 1898 Fair, David, Duniface, Windygates  
 1906 Fair, George, Camilla, Auchtertool, Kirkcaldy  
 1891 Fairlie, J. O. R., of Myres Castle, Auchtermuchty  
 1884 Farmer, Robert, of Kingask, St Andrews  
 1910 Ferguson, David, Easter Camps, Dunfermline  
 1882 Ferguson, R. C. Munro, of Raith, M.P., Kirkcaldy  
 1891 Ferrie, David, Farbroath, Cupar-Fife  
 1892 Finlay, Archibald, Malrsland, Auchtermuchty  
 1893 Finlayson, James, Coalfarm, St Monance  
 1908 Fleming, Alexander, Anstruther  
 1893 Fleming, Andrew, Bankhead, Leven  
 1906 Fleming, William, Grangemuir, Pittenweem  
 1911 Ford, James, Bucklyvie, Crossgates  
 1878 Forgan, James, Sunnysbraes, Largo  
 1911 Forrester, James, Whinnyhall, Kinglassie  
 1908 Forrester, William Andrew, Elie  
 1899 Fortune, George R., Rosebank, Colinsburgh  
 1905 Fraser, John, Collessie Mill, Collessie  
 1894 Fraser, Robt., Middle Balbeggie, Kirkcaldy  
 1904 Fulton, Adam, Netherton, Kelty  
 1911 Fulton, James, Midfield, Dunfermline  
 1888 Galloway, John, of Seggie, Guardbridge  
 1905 Gavin, George, Estate Office, Falkland Palace, Falkland  
 1871 Gibb, David, Barnsmuir, Craill  
 1898 Gibb, James, Mashall, Cupar-Fife  
 1909 Gibb, James, Balquhomerie, Leslie  
 1898 Gibb, William G., Pitteuchar, Thornton  
 1908 Gibson, John, Lochend, Leslie  
 1907 Gifford, John, Balbogie, Inverkeithing  
 1877 Gilchrist, Andrew, Carvenom, Anstruther  
 1876 Gilchrist, William, Nursery Cottage, Mount Melville, St Andrews  
 1876 Gillespie, John G., Ballingry Cottage, Lochore, Lochgelly  
 1911 Gilmour, Douglas, Montrave, Leven  
 1897 Gilmour, Harry, Montrave, Leven, Fife  
 1872 GILMOUR, Sir John, of Montrave, Bart., Leven  
 1897 Gilmour, Captain John, yr. of Montrave, M.P., Woodburn, Ceres  
 1890 Gilroy, George A., Clatto, Cupar-Fife  
 1911 Glen, William, Stenhouse, Burntisland  
 1887 Goodall, Thos., Cardenbarns, Cardenden  
 1911 Goodall, William, Balreggie, Cardenden  
 1898 Gordon, Rev. James G., The Manse, Kettle  
 1888 Gourlay, J. Murray, 1 Hope St., St Andrews  
 1911 Graham, John W., Syden Cottage, Kingskettle  
 1906 Gray, Henry, Broomhall, Dunfermline  
 1910 Gray, Thomas, Rose House Dairy, Crossgates



## Admitted

- 1904 Gray, Major Wm. Anstruther, of Kilmany, M.P., Cupar-Fife  
 1911 Grey, Frad, Fife and Kinross Asylum, Cupar-Fife  
 1911 Grieve, Andrew, Chesters, St Andrews  
 1911 Grosset, Alfred E., Solicitor, Cupar-Fife  
 1896 Grosset, J. E., Solicitor, Cupar-Fife  
 1899 Guild, William, of Lindores, Newburgh  
 1907 Haggart, James, jun., Baislie, Leslie  
 1911 Hamilton, John, Goatmilk, Leslie  
 1911 Hamilton, Robert, Myrecairnfe, Cupar-Fife  
 1908 Hamilton, William, Muirhead, Dairsie  
 1901 Hanbury-Tracy, Hon. Felix, Lathrisk House, Newton of Falkland  
 1909 Harley, Edward T., Peasehills, Wormit, Fife  
 1911 Harper, Joseph, Rathillet, Cupar-Fife  
 1895 Hattersley, Neil S., Devonside, Saline  
 1911 Heggie, George, Kilmagno Wood, Leslie  
 1891 Henderson, A. L., Kingsdale, Kenno-way  
 1911 Henderson, James, Balbie Burntisland  
 1911 Henderson, Robert, Strathmiglo  
 1908 Henderson, Wm., Reedieleys, Auchtermuchty  
 1895 Hewitt, Hon. William James, St Colmes House, Aberdour, Fife  
 1904 Hill, John, Langside, Kennoway  
 1901 Hill, Thos., jun., Boarhills, St Andrews  
 1900 Hill, William, East Baldrige, Dunfermline  
 1909 Home-Rigg, Patrick J., Tarvit, Cupar-Fife  
 1887 Howie, Arch., Grange Farm, Kinghorn  
 1909 Howie, John, Newark Farm, St Monance  
 1911 Hoy, Jasper, Gallowhill, Kennoway  
 1884 Husband, D., Struthers, Cupar-Fife  
 1891 Husband, Robert, Solicitor, Dunfermline  
 1883 Hutchison, Alex., Ingleside, Kirkcaldy  
 1908 Hutchison, Thomas, Auchtermuchty  
 1891 Hutton, John, Kilminning, Crail  
 1900 Inglis, James, Barnslee, Markinch  
 1891 Inglis, James, Redhouse, Cardenden, R.S.O.  
 1887 Inglis, John, of Colluthie, Cupar-Fife  
 1909 Ireland, H. B., Norwood Terrace, Newport, Fife  
 1895 Irving, John, Drybriggs Cottage, Cupar-Fife  
 1896 Jamieson, W., Estate Office, Elie  
 1893 Jeffrey, Robt., Drumfin, Torryburn  
 1877 Johnston, L., Sands, Kincardine-on-Forth  
 1882 Johnston, S. W., St Michael's, Cupar-Fife  
 1890 Kay, Alex., Flass, Newport  
 1884 Kay, Andrew, Hillside, Newburgh, Fife  
 1911 Kay, James, Fliskmillan, Newburgh  
 1881 Kay, Robert, Fliskmillan, Newburgh, Fife  
 1863 Kay, Wm., Gowanbank, Cupar-Fife  
 1909 Kennedy, Alex., Blackhall, Dunfermline  
 1898 Kidd, John, Rhynd, Leuchars  
 1859 Kinninmonth, Peter, Collairnie, Colleslie, Fife  
 1884 Kinnear, John Boyd, of Kinloch, Col-

## Admitted

- 1878 Landale, James, The Binn, Burntisland  
 1909 Lang, Robert, Bankhead, Dunfermline  
 1898 Lander, Thomas, Stoneywynd, Boarhills  
 1896 Law, James, Spencerfield, Inverkeithing  
 1891 Lawson, Alex., of Burnturk, Annfeld, Kettle  
 1908 Lawson, John, of Carriston, Markinch  
 1899 Leburn, Patrick M. G., Gateside House, Gateside  
 1884 Lees, David, of Pitcote, Cupar  
 1897 Leitch, Richard G., Cameron, Buckhaven  
 1897 Leitch, Robert, Tighyonie, Dunfermline  
 1896 Lesslie, William Smith, Banchory, Kirkcaldy  
 1907 Letham, John, Balgrummo, Leven  
 1911 Lochhead, Joseph, Upper Stenton, Thornton  
 1889 Lochhead, Matthew, Neworth Crescent Road, Lundin Links  
 1896 Longmuir, Thomas, St Andrews  
 1904 Low, William, Blebo, Cupar-Fife  
 1911 Lumsden, George James, Aithernie, Lundin Links  
 1895 Lumsden, John Lawson, Freuchie  
 1904 Lyle, Alex., Auchmudy Farm, Markinch  
 1899 Macdonald, A., Blacklaw, Dunfermline  
 1890 M'Gregor, James F., 73 Market Street, St Andrews  
 1878 M'Intosh, Dr, 21 Abbotsford Crescent, St Andrews (and Nevay Park, Forfarshire)  
 1910 Mackenzie, Alexander, M.R.C.V.S., 1 Whyte Melville Road, Kirkcaldy  
 1900 M'Kerchar, John, Pitbauchie, Dunfermline  
 1908 Maclellan, George L., of Kinsleith, Cupar-Fife  
 1908 Maclellan, Walter P., of Kinsleith, Cupar-Fife  
 1898 M'Laren, Wm., Inch Farm, Kincardine-on-Forth  
 1896 Maitland, F. L., of Lindores, Newburgh, Fife  
 1905 Marshall, Harley, of Dunduff, Dunfermline  
 1879 Marshall, Walter, of Lochmaloney, Cupar  
 1908 Martin, James, Johnstone Farm, Newburgh-on-Tay  
 1910 Mathewson, William, Comrie Castle, East Grange Station  
 1879 Meikle, William, Denbrae Farm, St Andrews  
 1893 Meiklem, James, Begg, Kirkcaldy  
 1898 Meiklem, William, Begg, Kirkcaldy  
 1905 Meldrum, Charles Bayne, of Balmungo, St Andrews  
 1898 Melville, Thos., Robertson, Rumbewan, Kettle  
 1875 Menzies, Fergus, 80 Canmore Street, Dunfermline  
 1897 Miller, Geo., Nydie Mains, St Andrews  
 1877 Miller, J., of Waukmill, Dunfermline  
 1908 Miller, James, Builder, Cowdenbeath  
 1911 Miller, James, Kinninmonth, Cardenden  
 1904 Miller, James W., Lochhead, West Wemyss  
 1908 Miller, Thomas, Builder, Cowdenbeath  
 1870 Millie, George, St Mary's, Cupar-Fife  
 1894 Mitchell, Alexander, of Luscar, Dunfermline  
 1911 Mitchell, Harry, Glenkie, Auchtertool  
 1905 Mitchell, H. Q., Newbigging, Burntisland  
 1899 Mitchell, James, County Buildings, Cupar-Fife  
 1898 Mitchell, John, Glenzie, Kirkcaldy  
 1904 Mitchell, Robt. T., Newington, Cupar-Fife

## Admitted

- 1899 Mitchell, Stuart, Newbigging, Burnt-island  
 1907 Mitchell, William, Calais, Dunfermline  
 1905 Morgan, John, Kilgour, Falkland, Fife  
 1906 Morris, Andrew Ireland, Grassmiston, Crail  
 1895 Morris, Major C. H. (of Killlindine), Dyers Brae, St Andrews  
 1878 Morrison, B. G. W., of Falkfield, Cupar-Fife  
 1902 Morrison, E. E., Bonnyton, Stravithie, R.S.O.  
 1901 Morrison, James, Lower Kenly, Boar-hills  
 1890 Morton, David, Crail  
 1899 Morton, John P., Broomhall, Dunfermline  
 1907 Moubray, A. M., Otterston, Aberdour, Fife  
 1894 Moubray, Capt. H. H. Carew, of Otterston, Aberdour  
 1908 Mungall, William, Transy, Dunfermline  
 1902 Murray, James, Lahill Craig, Largo, Fife  
 1888 NAYAN, Sir M. B., of Rankellour, Bart., Springfield  
 1896 Nasmyth, Alex. Hogg, Middlebank, Dunfermline  
 1906 Nicol, J. M. R., Greenside, Largo  
 1884 Nisbet, T. M., Forthar, Freuchie  
 1905 Niven, Alex., Park House, Inverkeithing  
 1880 Normand, William J., Dysart  
 1892 Orchison, Alexander, of Denbrae, Cupar-Fife  
 1908 Osborne, Charles S., Sheardrum Farm, Saline  
 1882 Osborne, David, Banker, Cupar-Fife  
 1896 Oswald, John, of Dunnikier, Kirkcaldy  
 1911 Oswald, Colonel, Dunnikier, Kirkcaldy  
 1911 Pagan, R. Osborne, Haymount, Cupar-Fife  
 1889 Paton, John, Kirkness, Lochgelly  
 1911 Peat, James, Edenwood, Cupar-Fife  
 1911 Philip, Thomas, Wester Cash, Strathmiglo  
 1898 Porter, James, Prinlows House, Leslie  
 1884 Prentice, G., of Strathore, Thornton  
 1889 Purvis, Colonel Alexander, R.A., of Kinaldy, 11 Queen's Gardens, St Andrews  
 1905 Purvis, Captain R., of Gilmerton, St Andrews  
 1899 Ramage, M., Ashgrove, Windygates  
 1895 Ramsay, John, Inch, Pittenweem  
 1911 Redpath, Robert, Springfield Farm, Springfield  
 1886 Reid, Andrew, V.S., Auchtermuchty  
 1911 Reid, David Murdoch, M.R.C.V.S., Southport House, Auchtermuchty  
 1910 Reid, David, Wester Finglassie, Leslie  
 1911 Reid, Robert, The Beeches, Ladybank  
 1908 Rintoul, Andrew Jeffrey, of Lahill, Largo  
 1904 Rintoul, Jas. F., Balmullo, Leuchars  
 1898 Rintoul, Wm., Mains of Blibo, Cupar  
 1904 Ritchie, James M., Denhead, Ceres, Fife  
 1900 Ritchie, William, Plains, Auchtermuchty  
 1904 Robertson, David, Rungally, Cupar-Fife  
 1900 Robertson, James, Orchardhead, Inverkeithing  
 1911 Robertson, John, Walton, Auchtertool  
 1907 Rodger, Andrew, Kellie Castle Farm, Pittenweem  
 1910 Rodger, George S., Glude Mains, Kirkcaldy  
 1899 Roger, John M., Balgove, St Andrews  
 1898 Roger, William, Kingsburne

## Admitted

- 1900 Rollo, D. M., Solicitor, Cupar-Fife  
 1900 Rollo, W., Easter Forret, Cupar-Fife  
 1891 Ross, Nicol, Cattle-salesman, Dunfermline  
 1905 Rorries, Earl of, Leslie House, Leslie  
 1806 Rowat, Robert, Easter Lumbennie, Newburgh-on-Tay  
 1904 Russell, David, of Inchdairnie, Leslie (2 St Andrew Square, Edinburgh)  
 1895 Russell, George, Hutton, Lundin Links  
 1899 Russell, Thomas, Falmuir, Lundin Links  
 1899 Rutherford, William, Thirdpart, Crail  
 1911 Scobie, George R., Methilhill Farm, Windygates  
 1911 Scott, David, Bighty, Markinch  
 1898 Scott, Douglas, Newton of Wemyss, Fifeshire  
 1893 Scott, John, Newton of Wemyss, Fifeshire  
 1898 Scott, John A., Mucross, St Andrews  
 1907 Shanks, Alex., Falkland Wood Farm, Falkland  
 1905 Sharp, Mrs F. B., Wemysshall, Cupar-Fife  
 1909 Shaw, John, Treaton Farm, Markinch  
 1908 Shepherd, J. Ogilvy, Royal Bank Buildings, Leven  
 1894 Shepherd, William, Solicitor, Leven  
 1904 Shiell, James Guthrie, Cairney, Cupar-Fife  
 1890 Sidey, James, Blinkbonny, Newburgh, Fife  
 1879 Sime, Alex., Bay View Cottage, Largo  
 1908 Sime, John Thomson, Bankhead of Inchdairnie, Leslie  
 1900 Sime, Wm. Webster, Royal Hotel, Ladybank  
 1902 Sivewright, Sir James, Tulliallan Castle, Kincardine-on-Forth  
 1911 Slacke, Captain Roger Cecil, House of Falkland, Falkland  
 1904 Small, And., Fernie, Colliestie  
 1904 Small, John, Mount Farm, Cupar-Fife  
 1904 Small, Robert, Kilnux, Kennoway  
 1904 Smith, Andrew, Remilton, Cupar-Fife  
 1897 Smith, James, Cults, Pittlesie  
 1886 Smith, Thomas, Inverdavon, Newport  
 1911 Smith, W. J., Newton, Colliestie  
 1898 Smith-Sligo, Arch. D., of Inzievar, Oakley, Fife  
 1888 Spröot, Colonel A., of Garnkirk and Stravithie, Stravithie House, Stravithie  
 1911 Stein, David, Cross Keys Tavern, Cupar-Fife  
 1876 Stenhouse, J. S., of Northfod, Dunfermline  
 1911 Steven, Alex., Braemar Cottage, Lochgelly  
 1907 Stevenson, Thos., Sauchenbush, Kirkcaldy  
 1892 Stewart, Hugh, Lumphinnans, Lochgelly  
 1904 Stewart, James, Clatto, Ladybank  
 1908 Stewart, James, Headwell, Dunfermline  
 1904 Stewart, John, Struthers Barns, Cupar-Fife  
 1911 Stewart, Ralph W., jun., Abbey Park Place, Dunfermline  
 1900 Storrar, Christopher, Dalninch, Markinch  
 1890 Storrar, David, Land Strayern, Cupar-Fife  
 1891 Storrar, Richard, Fyvie, Markinch  
 1905 Strang, Robt., Fiddlers Farm, Forfar, Fife  
 1901 Stuart, Captain John, Fiddlers House, Cupar-Fife  
 1890 Stuart, John, of Ochil, M.P., Falkland

## Admitted

- 1889 Syme, John, Nether Strathkinness, St Andrews  
 1877 Thom, Alexander, West Baldridge, Dunfermline  
 1871 Thom, James, Victoria Gardens, Kirkcaldy  
 1875 Thom, James F., Wellsgreen, Windygates  
 1879 Thom, R. D., of Pitlochrie, Strathmiglo  
 1899 Thomson, David (Flear & Thomson), Dunfermline  
 1902 Thomson, George, Bankellour, Springfield, Fife  
 1911 Thomson, James, Daft Mill, Springfield  
 1897 Thomson, James, Humber, Aberdeen  
 1908 Thomson, J., Milton Farm, Leuchars  
 1896 Thomson, John R., Methilhill, Windygates  
 1911 Thomson, Joseph, Blairfarm, Dysart  
 1896 Thornton, Robert, North Pitkinnie, Cardenden  
 1877 Tod, James, Easter Oath, Strathmiglo  
 1905 Torrie, Thos. Jameson, Denork, St Andrews  
 1896 Tulloch, John B., Dales, Inverkeithing  
 1893 Turnbull, Mark, Boghall, Kingsbarns  
 1896 Waldie, Adam, Callange, Cupar-Fife  
 1878 Walker, Archibald, Banker, Auchtermuchty  
 1911 Walker, Peter, of Kingask, Cupar-Fife  
 1875 Walker, Thos., Dempsteron, Auchtermuchty  
 1904 Wallace, Henry P., Tailabout, Cupar-Fife  
 1891 Wallace, John, Elphinstone, Lundin Links  
 1908 Wallace, Robert, Kincapple, Guardbridge  
 1883 Walls, Robert, Grange, Burntisland  
 1892 Wardlaw, John, Tough Mill, Dunfermline  
 1893 Watson, Arthur, Kinnear, Leuchars  
 1911 Watson, Edward E., Newmills, Cupar-Fife  
 1904 Watson, Henry, National Bank Buildings, Anstruther  
 1898 Watt, Frank M., Caldwell's, Colleslie  
 1882 Watt, W., Seed Merchant, Cupar-Fife  
 1905 Webster, John, Grange of Lindores, Newburgh  
 1890 Webster, Thos., Nisbetfield, Colleslie  
 1874 Wedderburn, H. S., of Wedderburn, Birkhill, Cupar  
 1884 Weighton, J. G., Priorletham, St Andrews  
 1900 Weir, John, M.A., Keith Street, Kincardine-on-Forth  
 1875 Whyte, John, The Barony, Cupar-Fife  
 1911 Wilson, Alex., Begg Farm, Kirkcaldy  
 1907 Wilson, A. Frank, C.D.A., Redieleys, Auchtermuchty—*Free Life Member*  
 1907 Wilson, David, Upper Magus, St Andrews  
 1882 Wilson, George, Gladstone Cottage, Cupar  
 1910 Wilson, James Watt, Priestfield, Ladybank  
 1911 Wilson, John, Hilton of Carslogie, Cupar-Fife  
 1902 Wilson, John C., Tulliallan Castle, Kincardine-on-Forth  
 1892 Wilson, John Hardie, D.Sc., F.R.S.E., St Andrews—*Free Life Member*  
 1880 Wilson, P., Albert Crescent, East Newport, Fife  
 1909 Wilson, Quintin, Doverhall Farm, Crossgates  
 1906 Wilson, Robt., Spittal Farm, Cardenden  
 1859 Young, A., Kinloch, Colleslie  
 1897 Young, James, Scotsraig, Tayport

## Admitted

- 1907 Young, Thomas, N.D.A., Woodburn Villa, Cupar-Fife  
 1909 Young, William, Craigencalt, Kinghorn  
 1875 Younger, J. B. B. C., Kinghorn  
 1899 Yule, John, Sauchope, Crail

## FORFAR

## (WESTERN DIVISION).

- 1910 Adamson, Wm. G. D., Wemyss, Forfar  
 1901 Airlie, Earl of, Cortachy Castle, Kirriemuir  
 1884 Anderson, James, Viewbank, Leysmill, Arbroath  
 1890 Andrew, James M., Magdalenes, Kirkton, Dundee  
 1908 Arnot, Patrick, Glamis Mains, Glamis  
 1871 Arnot, Wm., Glamis Mains, Glamis  
 1884 Auchterlonie, Alex., Kirkton of Nevey, Cupar-Angus  
 1905 Ballingall, Wm. O., Cookston, Glamis  
 1889 Batchelor, Francis M., Craigie, Dundee  
 1890 Baxter, Sir George W., Invereslarty, Forfar  
 1894 Bell, William, Balnuth, Dundee  
 1904 Bell, W. W., Auchtertyre, Newtyle  
 1908 Bishop, Wm. B., Fletcherfield, Kirriemuir  
 1876 Black, John, Cortachy, Kirriemuir  
 1899 Boyd, Charles, Solicitor, Cupar-Angus  
 1896 Brown, John G., Craighill, Dundee  
 1899 Brown, Wm. Donaldson, Drumgley, Forfar  
 1882 Buttar, Thomas A., Corston, Cupar-Angus—*Free Life Member*  
 1909 Cameron, Roderick E., Miltonbank, Justinbaugh, Forfar  
 1871 Camperdown, The Earl of, Camperdown, Dundee  
 1906 Clark, Allan, East Nevey, Meikle  
 1896 Clunie, George K., Whitfield, Dundee  
 1898 Colville, James W., Leoch, Dundee  
 1893 Cowans, David S., of West Mains, Auchterhouse, Dundee  
 1898 Cox, Edmund C., Dunnichen, nr. Forfar  
 1882 Cox, Geo. M. (Messrs Cox & Co.), Dundee  
 1879 Crabb, William, Rosewell, Kirriemuir  
 1855 Croll, John, Craighuach, Broughty Ferry  
 1883 Duncan, John, Muirhouses, Kirriemuir  
 1879 Duncan, Patrick G., East Memus, Kirriemuir  
 1881 Duncan, W. G., Balkemback, Tealing, Dundee  
 1895 Durkie, Alexander F., Mill of Mains, Dundee  
 1894 Fenton, David, Kingennie, Dundee  
 1893 Ferguson, R. A., of Ethiebeaton, Dudhope Works, Dundee  
 1904 Findlay, James, Newmill of Craigeassie, Tannadie, Forfar  
 1894 Fraser, H. E., Medical Superintendent, Royal Infirmary, Dundee  
 1904 Fyfe, Allan, North Mains, Mylnfield, Invergowrie, Dundee  
 1867 Gardyne, Col. C. G., Finavon, Forfar  
 1908 Gibson, John, Cairnleith, Kirriemuir  
 1879 Graham, D. M., Auctioneer, Forfar  
 1901 Graham, James, Mains of Baldovan, Dundee  
 1890 Grant, John, Craig Mills, Dundee  
 1905 Grant, William, Baron Hill, Forfar  
 1908 Gray-Cheape, Hugh Annesley, Carsgray, Forfar  
 1896 Guthrie, John, Grain Merchant, Forfar  
 1888 Hunter, Wm., Beech Tower, Broughty Ferry, Dundee  
 1899 Johnston, David, Bank of Scotland Buildings, Dundee

## Admitted

- 1890 Johnston, John, 14 St Clement's Lane, Dundee  
 1890 Kidd, David, West Ardler, Coupar-Angus  
 1904 Kilgour, James, Westbank, Longforan, Dundee  
 1888 Kyd, Robert, Marris Cottage, Coupar-Angus  
 1898 Laird, W. P., 78 Nethergate, Dundee  
 1906 Langlands, Jas. H., 51 Murraygate, Dundee  
 1905 Ligertwood, James, Tay Oil-Cake Works, Stannergate, Dundee  
 1894 Lindsay, Henry, Home Farm, Glamis  
 1890 Lyburn, John, Kinochtry, Coupar-Angus  
 1900 Lyon, William, Nether Drumgley, Forfar  
 1905 M'Gregor, William, Newbigging, Burrelton, Coupar-Angus  
 1890 MacIntyre, Peter, Denfind, Monikie, Dundee  
 1890 M'Kay, Alexander, Mains of Auchterhouse, Lundie, Dundee  
 1897 M'Laren, Alex., Grain and Straw Merchant, Dundee  
 1902 M'Laren, John, Balgillo, Forfar  
 1905 M'Laren, John, jun., Balgillo, Tannadice, Forfar  
 1891 Martin, Robert, Baldovie, Kirriemuir  
 1894 Maxwell, David, Upper Drumgley, Forfar  
 1879 Menzies, James, Tarbrax, Inverarity, Forfar  
 1892 Menzies, John C., Maritime Buildings, Dook St., Dundee—Free Life Member  
 1885 Menzies, W. D. Graham, of Hallyburton, Coupar-Angus  
 1894 Mitchell, James, Nether Migvie, Kirriemuir  
 1886 Mitchell, William, Balmashanner, Forfar  
 1900 Morgan, Andrew, Estates Office, Glamis  
 1905 Munro, Hugh T., Lindertis, Kirriemuir  
 1878 Murray, John, Balruddery, Dundee  
 1890 Murray, J. Douglas, Taycreggan, Perth Road, Dundee  
 1891 Murray, Joseph, Dryburgh, Lochee, Dundee  
 1887 Myles, Rob., Collamy, Cortachy, Kirriemuir  
 1867 Nicol, T. Monro, Littleton, Kirriemuir  
 1891 Nicoll, William, Carsebank, Forfar  
 1911 Nicoll, Wm. H., Middle Brighty, Dundee  
 1907 Ogilvie, George H., Westlands, Broughty Dundee  
 1906 Ogilvy, Herbert K., Baldovan House, Dundee  
 1904 Ogilvy, William, Ldsen, Kirriemuir  
 1898 Ovenstone, Charles Barrie, Duntrune, Dundee  
 1890 Pattullo, David, Piteur, Coupar-Angus  
 1891 Pattullo, John, Barnhill, Broughty Ferry  
 1885 Pattullo, William, 19 St Andrew Street, Dundee  
 1868 Ralston, Andrew, Glamis House, Glamis  
 1898 Ralston, Claude L., Glamis  
 1886 Ralston, Gavin, Glamis House, Forfar  
 1899 Reich, Donald, Scroggiefield, Forfar  
 1905 Reid, James C., Kilmundie, Glamis  
 1901 Ritchie, James Smith, 1 Commercial St., Dundee  
 1890 Robertson, Wm. Brown, Dudhope House, Dundee  
 1908 Rogers, John Y., Rose Mill, Dundee  
 1881 Rogers, William, Ph.D., Rose Mill, Dundee  
 1881 Ross, Wm., 98 Brook Street, Broughty Ferry  
 1896 Rough, William, Longbank, Kirriemuir  
 1890 Scott, George G., Baresmount House, Broughty Ferry

## Admitted

- 1894 Scott, Jas., Westfield, Forfar  
 1888 Sharp, Andrew, Norlands, West Albany Terrace, Dundee  
 1890 Sharp, John, Balmuir, Dundee  
 1883 Shield, J. T., Broughty Ferry  
 1905 Simpson, James, Newmill, Dunnichen, Forfar  
 1908 Smith, George K., 7 Murraygate, Dundee  
 1909 Smith, Herbert, The Binn, Fowls Easter, Dundee  
 1900 Soutar, John G., Balmossie, Broughty Ferry  
 1890 Spreull, Andrew, V.S., Yeaman Shore, Dundee  
 1906 Steele, R., Wormit Works, Dundee  
 1896 Steele, Thomas, Foulis Easter, Dundee  
 1894 Stewart, John F., Noranbank, Forfar  
 1893 Stewart, William, Auchlishie, Kirriemuir  
 1908 Strathmore, Earl of, Glamis Castle, Glamis  
 1903 Thoms, William L., Benvie, Dundee  
 1893 Thomson, David Couper, 'Courier' Office, Dundee  
 1911 Wallace, David, Nether Urquhart, Gate-side  
 1902 Warden, James L., Easter Meathie, Forfar  
 1899 Waterston, David, Estates Office, Glamis  
 1903 Watson, George, Damside, Coupar-Angus  
 1900 Watson, James, Woodlyn, Dundee  
 1880 Watson, Wm., Downleken, Dundee  
 1881 Wedderspoon, George, Balgavies, Forfar  
 1891 White, J. Martin, of Balruddery, Dundee  
 1861 Whittton, And., of Couston, Newtyle  
 1899 Whyte, Alexander, Hatton of Bessie, Glamis  
 1884 Whyte, Archibald, Inverquhar, Kirriemuir  
 1890 Whyte, James, Upper Hayston, Glamis  
 1871 Whyte, John, West Denoon, Glamis  
 1868 Whyte, William, Spott, Kirriemuir  
 1898 Whyte, Wm., jun., Spott, Kirriemuir  
 1881 Wilkie, James, Solicitor, Kirriemuir  
 1878 Wilson, T. Mackay, Solicitor, Kirriemuir  
 1909 Winter, Edgar, Cortachy Post Office, Kirriemuir  
 1897 Wyllie, William, Glasswell, Kirriemuir  
 1908 Young, John B., Muirloch, Fowls Easter, Dundee

## KINROSS.

- 1882 ADAM, Sir Chas. E., of Blair Adam, Bart., 5 New Sq., Lincoln's Inn, London, W.C.  
 1861 Anderson, Robert H., Tillyrie Cottage, Milnathort  
 1911 Archibald, A. E., Arlary, Milnathort  
 1898 Barclay, John, Pittendreich, Kinross  
 1911 Baxter, John, Mawhill, Kinross  
 1911 Bayne, John, Westhall, Kinross  
 1868 Beath, David, Balleave, Kinross  
 1898 Bogle, John, Solicitor, Kinross  
 1911 Clark, James, Gospey, Milnathort  
 1908 Craig, Henry, Craigwell Farm, Kinross  
 1898 Dawson, James A., Ramage, of Balmuir, Kinross  
 1911 Downie, Alex. M., Avenue Road, Kinross  
 1902 Falconer, William K., Solicitor, Kinross  
 1900 Ferguson, William, Glasgow, Scotland, Milnathort  
 1894 Flockhart, Wm., of Glasgow, Kinross  
 1911 Fotheringham, David, Fowls Easter, Kinross  
 1911 Hepburn, John, of Glasgow, Kinross  
 1872 Hunter, James, of Glasgow, Kinross  
 1811 James, John, of Glasgow, Kinross

## Admitted

- 1911 Keay, John, jun., Butterwell, Milnathort  
 1911 Macdonald, Alex., Dalquieich, Milnathort  
 1911 M'Callum, John, Touehie, Milnathort  
 1894 M'Ewen, John, Middle Balado, Kinross  
 1911 M'Farlane, Bartholomew, Cockairnie, Kinross  
 1911 M'Farlane, William, Cockairnie, Kinross  
 1911 M'Lennan, D. A., Athronhall, Milnathort  
 1911 M'Menamy, John Joseph, Parkhouse, Kinnesswood  
 1899 Meiklem, Robert, Lochran, Blair Adam  
 1878 Mitchell, Jas., Ardallie, Fossoway  
 1882 Montgomery, H. Jas., of Hattenburn, Milnathort  
 1862 Morrison, J. B. B., of Finnerlie, Kinross  
 1904 Muirhead, Alex., Hatchbank, Kinross  
 1905 Muirhead, Thos., Banchhead, Fossoway  
 1911 Noble, James, South Street, Milnathort  
 1870 Paterson, A., Blinkhoolie, Kinross  
 1911 Paton, J. Herbert of Lethangie, Kinross  
 1896 Porteous, Colonel James, of Turfhill, Kinross  
 1911 Pullar, Robert, Sunnyside, Blair Adam  
 1871 Reid, George, of Tillyrie, Milnathort  
 1904 Reid, Robert M., Thomanean, Milnathort  
 1906 Rycroft, Col. Wm. Henry, Ard Gairney, Kinross  
 1900 Shorthouse, Alexander, Hillside, Cambo, Kinross  
 1910 Shorthouse, Robert, Coldon, Kinross  
 1890 Simpson, Jas., of Mawcarse, Milnathort  
 1878 Simpson, Jas., North Lethans, Kinross  
 1911 Sloan, William, Goudierannet, Kinross  
 1905 Smith, James, Banker, Kinross  
 1884 Steedman, James, of Frux, Kinross  
 1911 Stewart, Hugh, jun., Craigowmill, Milnathort  
 1878 Terris, J., jun., Dullmuir, Blair Adam  
 1870 Tod, Thos. M., of West Brackly, Kinross  
 1884 Tod, Wm., of East Brackly, Kinross  
 1901 Watson, George, Little Herd Hill, Kirriemuir  
 1911 Wilson, George, Mayfield, Kinross  
 1911 Wilson, J., Bracklemoss, Kinross  
 1911 Wilson, Robert of Balgeddie, Kinross

## PERTH

(PERTH SHOW DIVISION).

- 1908 Adamson, J. W. Mackie, Duncrevie, Glenfarg  
 1896 Allan, John, Busby, Methven, Perth  
 1878 Allan, John, Cuthill, Dunkeld  
 1896 Allan, John, Dalcrue, Almondbank, Perth  
 1887 Allan, William, Kinnon Park, Methven, Perth  
 1904 Allan, William, Victoria Auction Hall, Perth  
 1909 Allison, Hugh, Pleasance Farm, Coupar-Angus  
 1878 Anderson, Peter, Duneaves, Fortingal  
 1871 Anderson, Robert, Balbrogie, Coupar-Angus  
 1896 Annand, William, Mains of Craigisla, Kilry, Alyth  
 1880\*ATROLL, The Duke of, K.T., Blair Castle, Blair Atholl  
 1902 Ballingall, Simpson, Parkfield, Scone, Perth  
 1901 Barker, George, Engineer, Perth  
 1898 Baxter, Wm., Tophead, Stanley

## Admitted

- 1899 Bell, George, South Inchmichael, Errol  
 1904 Bell, H. J., Inveravon (18 Charlotte Street), Perth  
 1887 Bell, James H., of Rossie, Forgandenny  
 1901 Bell, William, C.M., Aberfeldy  
 1895 Bernard, John Mackay, of Dunsinnan, Perth  
 1902 Bett, James Esson, Easterton, Glenfarg  
 1884 Bett, Thomas, Dalnallinn, Aberfeldy  
 1899 Beveridge, Jas., Orchardbank, Glasgow Road, Perth  
 1908 Bishop, James, of Cronan, Coupar-Angus  
 1884 Black, Captain, of Balgowan, Perth  
 1905 Bonella, John, Bonhard, Scone, Perth  
 1888\*†BREADALBANE, The Marquis of, K.G., Taymouth Castle, Aberfeldy  
 1891 Brown, John, 21 York Place, Perth—*Free Life Member*  
 1871 Brown, Peter, Stanley  
 1908 Brown, William, Hatton Farm, Kinnoull, Perth  
 1879 Bruce, And., Jordanston, Meikle  
 1897 Bruce, George, of Rosefield, Balbeggie  
 1910 Bruce, R. S., Greenburns, Coupar-Angus  
 1907 Bryden, James G., New Maine, Scone, Perth  
 1904 Buik, P. R., 75 George Street, Perth  
 1902 Bull, Arthur G., Scottish Live Stock Insurance Co., Tay Street, Perth  
 1907 Bullough, Ian, Meggernie Castle, Aberfeldy  
 1904 Buttar, Alex., 75 George Street, Perth  
 1910 Buttar, Ralph S., Strathview, Coupar-Angus  
 1877 Butter, Albert, Union Bank, Perth  
 1895 Butter, Arch. Edward, Pitlochry  
 1908 Butter, Charles A. J., of Faskally, Clunie more, Pitlochry  
 1871 Cairns, Robert, Letham House, Perth  
 1904 Calder, John J., Ardargie, Forgandenny  
 1888 Cameron, Donald, Roro More, Aberfeldy  
 1896 Cameron, John, Cairnbeddie, St Martins, Perth  
 1908 Cameron, John, Ballanloan, Blair Athol  
 1892 Campbell, Alexander, Borland, Fernan, Killin  
 1879 Campbell, Duncan, Balnacraig, Fortingall  
 1896 Campbell, Dun., 7 Queen's Avenue, Perth  
 1901 Campbell, J. Douglas, Craigmakerran, Guildtown, Perth  
 1896 Campbell, Peter, Kerrowmore, Glenlyon, Aberfeldy  
 1901 Carmichael, James S., of Arthurestone, Meikle  
 1879 Chalmers, John, Westwood, Stanley  
 1888 Chapman, Alexander, Wester Buchanty, Glenalmond, Perth  
 1890 Chisholm, Colin Edward, Denmarkfield, Perth  
 1871 Chrystal, George, Engineer, Perth  
 1871 Clark, Robert, Taybank House, Errol  
 1906 Clark, Thomas, Pitlandie Farm, Stanley  
 1905 Cochrane, Andrew, Alyth (35 Tobago Street, Glasgow)  
 1907 Colston, William G., Rossie Estate Office, Inchture  
 1896 Constable, Robert, Balledgarno, Inchture  
 1890 Cox, Albert E., of Dungarthill, Dunkeld  
 1896 Cox, Edward, of Canndean, Meikle  
 1890 Cox, Alfred W., Glendock, Glencarse  
 1899 Cox, William Henry, of Snaigow, Dunkeld  
 1904 Crichton, D. A., Mains of Rathray, Blairgowrie

## Admitted

- 1905 Crichton, Robert, Burrelton, Coupar-Angus  
 1906 Cunningham, James, Hillend, Perth  
 1907 Cunningham, William, Auchtenny, Forgan-denny  
 1879 DALGLEISH, Sir Wm. Ogilvy, of Errol Park, Bart., Errol  
 1896 Darling, Hon. Lord Stormonth, of Balvarran, Pitlochry (10 Great Stuart Street, Edinburgh)  
 1894 Dewar, Sir John A., Bart., M.P., Perth  
 1896 Dickie, William B., Whitehills, Inchture  
 1904 Doe, George B., Errol Implement Depot, Errol  
 1899 Doig, James, Haughend, Meigle  
 1894 Dongall, James, Knowhead, Guldtown, Perth  
 1906 Douglas, Daniel, Millwright, Perth  
 1879 Dow, David, Balmanno, Bridge of Earn  
 1879 Dow, James, Tarsappie Cottage, Perth  
 1903 Duncan, James, Coupar Grange, Coupar-Angus  
 1896 Dyce, William, 24 St John Street, Perth  
 1874 Fell, John Duncan, Flasher, Blairgowrie  
 1894 Fenwick, James, Kirkhill, Redgorton, Perth  
 1904 Ferguson, Andrew Mitchell, Banker, Alyth  
 1900 Ferguson, Thomas, Kinocetry, Coupar-Angus  
 1879† Ferguson, W. S., Pictstonhill, Perth  
 1905 Ferguson, Wm. S., Newton of Ballunie, Coupar-Angus  
 1905 Ferguson, William Scott, Byres, Perth  
 1904 Fergusson, Alexander, Dalcapon, Ballin-luig  
 1879 Fergusson, Donald, Dalcapon, Pitlochry  
 1897 Forbes, James, Deanshaugh, Strath-braan, Dunkeld  
 1892 Fotheringham, Walter Stewart, of Fother-ingham and Murthly  
 1906 Fraser, Adam, Balgarvie, Scone, Perth  
 1879 Fraser, John M., of Invermay, Forteviot  
 1897 Fraser, John, Glenfoot, Abernethy, Perthshire  
 1904 Fraser, Wm. Lovat, Invermay, Forteviot  
 1905 Fullarton, James, Redstone, Coupar-Angus  
 1910 Fulton, James, Knollhead, Kettins, Coupar-Angus  
 1900 Fyfe-Jamieson, James F., Ruthven, Meigle  
 1896 Gardiner, James, Rose Crescent, Perth  
 1890 Gardiner, Thos. J., Banchoy, Coupar-Angus  
 1871 Geckie, R., of Baldowrie, Rosemount, Blairgowrie  
 1875 Gillespie, Jas. J., Brier Bank, Glasgow Road, Perth  
 1909 Gordon, R. G., Lettock, Killiecrankie  
 1887 Gow, Geo., Rannoch  
 1896 Graham, Alex., Ardgargie Mains, Forgan-denny  
 1896 Graham, Col. Henry Stewart Murray, of Murrayshall, Perth  
 1896 Graham, John, Tippermallo, Methven, Perth  
 1904 Grant, Alfred B., of Hay & Co., Perth  
 1887 Grant, George, Lilly Bank, Blairgowrie  
 1879 Grant, John S., Tullymet, Ballinluig  
 1899 Grant, W. J. B., Bengarth, Blairgowrie  
 1880 Gray, George, Bowerswill, Perth  
 1894 Gray, Thomas, Ellibank Villa, Perth  
 1861 Greig, T. Watson, of Glencarse, Perth  
 1895 Greig, Thomas, yr. of Glencarse, Perth  
 1904 Grimond, John, Oakbank, Blairgowrie  
 1897 Guild, William, Laurel Villa, Bankfoot, Perthshire  
 1903 Haggart, James D., Broadalbane Mills, Aberfeldy

## Admitted

- 1896 Halley, Robert, Grain Merchant, Perth  
 1890 Halkett, John Gilbert Hay, Balendoch, Meigle  
 1889 Hardie, David, Factor, Estates Office, Errol  
 1905 Harrison, Rev. John, Aberfeldy  
 1881 Hart, Andrew, Aberdalgie, Perth  
 1905 Hart, Jas. Maule, Nether Garvock, Dunning  
 1873 Hart, William, Nether Garvock, Dunning  
 1870 Hay, Alexander, Easter Cultmalundie, Perth  
 1904 Hay, Jas. Drummond, Cultmalundie, Tibbermuir, Perth  
 1896 Henderson, Robert, Hillyland, Perth  
 1890 Henderson, William, of Lawton, Coupar-Angus  
 1881 Hill, John, E. Cultmalundie, Tibbermuir, Perth  
 1904 Hill, R. Wylie, of Balthayock, Perth  
 1897 Hogg, Wm. H., Hallyburton Estate Office, Coupar-Angus  
 1894 Hollingworth, Thos., New Mains, Inch-ture  
 1873 Home-Rigg, James Riversdale, Bridge of Earn  
 1896 Hope, Robert, Huntingtower Mains, Perth  
 1898 Howison, James, Rannagullzion, Blairgowrie  
 1894 Howison, Robert, East Inchmichael, Errol  
 1911 Hunter, R. G., Newmains, Fingask, Errol  
 1904 Husband, David, Taymount Farm, Stanley  
 1909 Hutcheson, Andrew Cooper, Beechwood, Perth  
 1903 Inglis, Robert, Factor, Blair-Atholl  
 1893 Jackson, Thomas D., Hay & Co., Ltd., Perth  
 1884 Jameson, Martin, Fernhill, Perth  
 1904 Jardine, John, 76 George Street, Perth  
 1898 Keay, Peter, Marybank, Herriotfield, Logiealmond  
 1904 Keir, David, Ladywell, Dunkeld  
 1881 Kerr, Thomas, Drumbeth House, Stanley  
 1894 Kidd, George, Drunkfilbo, Meigle  
 1904 Kidd, James, Mains of Errol, Errol  
 1896 Kinloch, Chas. Y., of Gourdle, Dun-keld  
 1879 KIRKPAIK, Lord, Rossie Priory, Inch-ture  
 1896† KINNOUL, The Earl of, Dupplin Castle, Perth  
 1896 Lamb, Alexander, Freeland, Forgan-denny  
 1904 Law, William, Windyedge, Perth  
 1903 Leslie, Peter, Brighton, Ruthven, Meigle  
 1894 Leslie, Thomas, Kinloch Arms Hotel, Meigle  
 1903 Lindsay, Alexander, 148 South Street, Perth  
 1905 Lindsay, D. C. Ruthven, Aberfeldy, Kirkmichael, Blairgowrie  
 1904 Livingston, James A., of Gairloch, town, Perth  
 1903 Logan, D. O., Perth, Perth  
 1884 Lumsden, J. D., Perth, Perth  
 1896 Lumsden, Robert, Perth, Perth  
 1897 Macdonald, James, Perth, Perth  
 1892 Macdonald, James, Perth, Perth

## Admitted

- 1904 M'Cash, Wm. F., Westfield, Perth  
 1905 M'Cracken, J., Victoria Hotel, Princess Street, Perth  
 1884 Macdiarmid, Donald, Bank of Scotland, Aberfeldy  
 1896 Macdonald, Alex., Meggernie Estate Office, Glenlony, Aberfeldy  
 1899 Macdonald, A. J., Rossie Priory, Inchture  
 1855 Macdonald, Archibald Burns, Earnoch, Perth  
 1887 Macdonald, Duncan, Aberfeldy  
 1890 M'Donald, James, City Mills, Perth  
 1904 Macdonald, John, Saucher, Collace, Perth  
 1895 M'Donald, J. M., Welton, Blairgowrie  
 1880 Macdonald, Montague, of St Martins, Perth  
 1896 M'Dougall, Donald, Claggan, Ardtalanaisg, Killin  
 1874 Macduff, Alex., of Bonhard, Perth  
 1904 Macduff, Alexander, yr. of Bonhard, Perth  
 1888 M'Gilliewie, R., Union Bank, Dunkeld  
 1882 M'Gregor, Athole, Ard Chaille, Perth  
 1809 M'Gregor, James, East Fildmore, Longforgan  
 1909 M'Gregor, Thomas, Millbank, Coupar  
 1904 M'Inroy, James, Baldinnies, Dunning  
 1905 M'Intosh, Donald, Langley House, Perth  
 1894 M'Intosh, Thos., Ardgargie, Forgan-denny  
 1908 M'Kearney, John, 21 Melville Street, Perth  
 1896 Mackendrick, William, 88 St John Street, Perth  
 1899 Mackenzie, George A., Solicitor, Perth  
 1885 Mackenzie, R. W. R., Stormontfield, Perth  
 1896 Mackinnon, John, Auctioneer, Blairgowrie  
 1905 M'Lagan, Robt. P., Cherrybank, Perth  
 1896 M'Lagan, J. G., Woodburn Cottage, The Cairnies, Glenalmond, Perth  
 1898 M'Laren, John, Retreat House, Seone  
 1907 M'Leod, John, Stralochy, Dunkeld  
 1877 M'Leish, G. S., Wester Drumatherty, Dunkeld  
 1884 M'Leish, James, Byres of Murthly, Perth  
 1897 MacLeish, James, 15 Mill Street, Perth  
 1909 M'Leish, John, Wester Cairnie, Forteviot  
 1892 M'Naughton, Alex., Manufacturer, Pitlochry  
 1910 M'Naughton, Donald, Greenfield, Glenalmond, Perth  
 1896 MacNaughton, James, Edrogoll, Aberfeldy  
 1896 MacNaughton, Peter, Remony, Kenmore  
 1898 MacRae, U. H. A., Dalchalloch, Calvine  
 1896 Mansfield, The Earl of, Seone Palace, Perth  
 1901 Marshall, David, Joint County Clerk, Perth  
 1901 Marshall, James M'L., of Bleaton Hallet, Blairgowrie  
 1896 Martin, H., Flowerdale, Balbeggie, Perth  
 1895 Martin, James, Eastbank, Longforgan  
 1900 Martin, James, Keithick Mills, Coupar-Angus  
 1909 Mathers, Alex. (H. W. Mathers & Son), Errol  
 1884 Matthew, John M., of Auchmague, Perth  
 1904 Meldrum, Andrew M., Solicitor, Pitlochry  
 1898 Meldrum, Rev. Andrew, Logierait Manse, Ballinluig

## Admitted

- 1869 Menzies, Dr James, of Pitnacree, Hill-side, Langboro' Road, Wokingham, Berks  
 1904 Menzies, James, Drumhead, Blairgowrie  
 1904 Menzies, John Graham, Hallyburton, Coupar-Angus  
 1909 Menzies, Peter, Bogtonlea, Dunning  
 1893 Menzies, Robert, Millhaugh, Heriotfield, Logieslmond  
 1879 Menzies, Robert, Tirlinie, Aberfeldy  
 1898 Menzies, Robert, Weem Hotel, Aberfeldy  
 1887 Menzies, Wm. J. B. Stewart, Chesthill, Aberfeldy  
 1904 Michie, Thos., Clunskea, Pitlochry  
 1885 Middleton, Col. W. F., Baldarroch Murthly  
 1895 Millar, David, Tullymorean, Logieslmond  
 1898 Millar, James Robert, Flawerag, Errol  
 1896 Millar, William, Keilor, Coupar-Angus  
 1871 Millar, Wm., Over Kinfauns, Perth  
 1890 Miller, George A., W.S. Perth  
 1890 Miller, James Gilbert, Viewcot, Glasgow Road, Perth  
 1896 Miller, William, Woodhead, Aberdalgie, Perth  
 1903 Mitchell, David, Royal Bank, Blairgowrie  
 1877 MitcheM, Hugh, Banker, Pitlochry  
 1889 MONCREIFFE, Sir Robt. D., of Moncreiffe, Bart., Bridge of Earn  
 1908 MORAY, Earl of, Kinfauns Castle, Perth  
 1898 Morgan, Wm. F., Ardgath, Glencarse  
 1905 Morison, William, Newmill, Perth  
 1896 Morrison, John, West Inchmichael, Errol  
 1896 Morton, David, North Muirton, Perth  
 1879 Morton, R. G., Engineer, Errol  
 1904 Mossion, Thos., Potato Merchant, Coupar-Angus  
 1888 Munro, Chas., Union Bank, Aberfeldy  
 1908 Munro, Charles D., Solicitor, Aberfeldy  
 1908 Munro, William, Bank Agent, Aberfeldy  
 1886 MURRAY, Hon. Alexander David, Seones Lethendy, Perth  
 1871 Murray, O. A., Taymount, Stanley  
 1896 Murray, David, Balgersho Works, Coupar-Angus  
 1900 Murray, E. Mackenzie, Woodside House, Coupar-Angus  
 1905 Nairn, William, M.R.C.V.S., 68 High Street, Blairgowrie  
 1896 Nimmo, Robert, 9 Pitcullen Crescent, Perth  
 1904 Norie-Miller, Francis, of Cleeve, Perth  
 1905 Ogilvy, John C., Parkhead, Blairgowrie  
 1905 Ogilvy, John Wedderburn, yr. of Ruthven, Meigle  
 1908 Ogilvy, W. G. Wedderburn, Balendoch, Meigle  
 1904 Osler, Jas., of Hay & Co., Perth  
 1896 Osler, James B., Coupar-Angus  
 1899 Panton, William S., Newton House, Blairgowrie  
 1880 Paton, Jas., Obney, Bankfoot  
 1898 Paton, Wm. B., Monorgan, Longforgan  
 1892 Paterson, Chas. J. G., of Castle Huntly, Longforgan  
 1900 Pattullo, H. M., Langlogie, Meigle  
 1904 Pattullo, Robt. C., Bankhead, Alyth  
 1898 Pattullo, William, Fullarton, Meigle  
 1901 Pearson, James C., Auchlath, Pitlochry  
 1896 Peddie, David, Forteviot Farm, Forteviot  
 1891 Pitcaithly, Geo., West Dron, Bridge of Earn  
 1877 Pople, George, Newhouse, Perth  
 1904 Pople, W. G., Newhouse, Perth  
 1898 Frair, Alex. M., Homelea, Errol  
 1900 Frair, John, Invergowie  
 1909 Provan, Alex., Hilton, Perth  
 1909 Provan, James, Wallacetown, Bridge of Earn

## Admitted

- 1896 Pullar, Albert E., Durn, Perth  
 1897 Pullar, Charles, Muirhall, Perth  
 1896 Pullar, Herbert S., Dumbarnie Cottage, Bridge of Earn  
 1896 Pullar, James F., Rosebank, Perth  
 1871 PULLAR, Sir Robert, of Tayside, Perth  
 1896 Pullar, Rufus D., Braham, Perth  
 1884 Rae, W. A., Douglasfield, Murthly  
 1871 RAMSAY, Sir James H., of Bamff, Bart., Alyth  
 1890 Ramsay, Prof., Glenshee, Blairgowrie  
 1911 Rattray, Alex., East Drummie, Bridge of Cally, Blairgowrie  
 1897 Reid, James, Whinniemuir, Perth  
 1898 Renton, James, Craigisla, Perth  
 1896 RICHARDSON, Sir E. A. Stewart, of Pitfour, Bart., Glencarse, Perth  
 1890 Richardson, Colonel Edmund R. Stewart, of Ballathie, Stanley  
 1904 Ritchie, James, The Neuk, Rosemount, Blairgowrie  
 1899 Robertson, Chas., Balnacree, Pitlochry  
 1900 Robertson, Charles, Trochrie, Strathbraan, Dunkeld  
 1904 Robertson, Chas., West Buttergask, Coupar-Angus  
 1904 Robertson, Chas. B., Faskally Estate Office, Pitlochry  
 1898 Robertson, Daniel, Mains of Fordie, Dunkeld  
 1902 Robertson, David, Cloag, Methven, Perth  
 1910 Robertson, Ernest F. (of Auchleeks, Blair Atholl), Craigveoch, Aberfoyle  
 1899 Robertson, George, Innernytie, Stanley  
 1876 Robertson, J. S., of Edradynate, Strath-tay  
 1888 Robertson, Wm., Potato Merchant, Perth  
 1879 Robertson, Wm., Engineer, Perth  
 1888 Rollo, James A., County Club, Perth  
 1871 Roy, Thomas, Craigclowan, Perth  
 1897 Roy, William, Kirkton of Mailer, Perth  
 1909 Schofield, T. B., Glenlyon Home Farm, Fortingal, Perthshire  
 1911 Scott, Charles Howard, Draffin, Coupar-Angus  
 1899 Scott, D. W., Garrymore, Blairgowrie  
 1903 Scott, Frank, Jeaniebark, Old Scone, Perth—*Free Life Member*  
 1905 Scott, George, Eastertyre, Ballinluig  
 1899 Scott, J. G., Kimpurney, Newtyle, Forfar  
 1879 Scott, John, Eastertyre, Ballinluig  
 1905 Scott, John, Road Surveyor, Shielhill, Stanley  
 1901 Scott, J. Elliot, Inveralmond, Perth  
 1888 Scrimgeour, Peter, Balboughty, Perth  
 1904 Scrimgeour, William, Bowhouse Farm, Scone, Perth  
 1890 Sellar, James T., W.S., Perth  
 1902 Shaw, Robert, 24 King Street, Perth  
 1911 Shepherd, Alex. M. M., Abernethy  
 1896 Simpson, James, Northbank, Perth  
 1889 Sinclair, John, Greenhill, Dunning  
 1891 Smith, James, Cranley, Meikleour  
 1896 Smith, John F., Eastfield, Bridge of Earn  
 1905 Smith, Robt., Burnside Farm, Stanley  
 1876 Smythe, Colonel David M., of Methven, Perth  
 1889 Speedie, Matthew, Pitversie, Abernethy  
 1881 Speid, James, Forneth, Dunkeld  
 1896 Stark, James, Coates of Fingask, Perth  
 1890 Stead, W. F., Ballindean House, Inchtute

## Admitted

- 1896 Stephenson, John B., Pitillock, Glenfarg  
 1905 Steuart, Captain J. M., of Ballechin, Strath-tay  
 1891 Stevens, A. B., Mains of Kilgraston Bridge of Earn—*Free Life Member*  
 1898 Stewart, Alex. Blair, Balnakeilly, Pitlochry  
 1899 Stewart, Alex., Netherton, Fonab, Pitlochry  
 1905 Stewart, Archd. A. (Glenfermate), Blair Atholl  
 1898 Stewart, Duncan, Mains of Balyonkan, Pitlochry  
 1870 Stewart, Donald, Clachan, Calvine  
 1881 Stewart, D. D., Castlehill, Inchtute  
 1888 Stewart, H. D., Strathgarry, Blair Atholl  
 1900 Stewart, James, Friarton, Perth  
 1883 Stewart, J. F., Newmill, Stanley  
 1896 Stewart, Peter, Kirkton of Abernety, Inchtute  
 1894 Stewart, William, Middleton, Tullypowrie, Strath-tay  
 1891 Strachan, James, Millhill, Inchtute  
 1909 Strang, Gavin, Moneydie, Redgorton  
 1896 Stratton, David, Olashigar, Logiealmond, Perth  
 1898 Sutherland, William, Peel, Perth  
 1907 Sym, Jas. Pitcairn, jun., Eavelick, Errol  
 1890 Tasker, George, Arnbog, Meikle  
 1899 Tasker, Wm., jun., Cambo, Meikle  
 1889 Tasker, Wm., East Cambo, Meikle  
 1911 Tedcastle, Robert Joseph, Balmaconnell, Ballinluig  
 1896 Thom, James, Cambusmichael, Guildtown, Perth  
 1900 Thomson, Andrew, D.Sc., Perth Academy, Perth  
 1905 Thomson, Alex., Springfield, Coupar-Angus  
 1901 Thomson, James Meikle, Viewbank, Coupar-Angus  
 1911 Thomson, William, Mill of Airtully, Stanley  
 1906 Thow, John, Rossie Farm, Dunning  
 1896 Todd, William Drummond, Mains of Gorthy, Methven  
 1908†Tullibardine, Marquis of, M.V.O., D.S.O., Dunkeld House, Dunkeld  
 1909 Tulloch, Charles O., Beechwood, Abbey Road, Scone, Perth  
 1909 Warnock, Arch., Gateside, Meikleour  
 1908 Waterson, John, Stewart Tower, Stanley  
 1901 Watson, Wm., Inchoconans, Errol  
 1894 Webster, J. A., Commercial Bank, Perth  
 1881 Wedderspoon, Thos., Castleton, Meikle  
 1904 White, Charles D., Guardwell, Inchtute  
 1892 Whitson, W., Isla Park, Coupar-Angus  
 1884 Whyte, William, Muirhead, Forgan-denny  
 1900 Wilson, Robert T., Craiglochie, Errol  
 1905 Wilson, Sydney, Woodburn, Craigie Road, Perth  
 1904 Winton, Edward C., Mains of Duns-fallandy, Pitlochry  
 1898 Wyllie, Scott, Milton of Luncarty, Redgorton, Perth  
 1894 Wynd, David, Newbigging, Perth  
 1905 Yool, Thos., Menzies, Perth  
 1890 Young, John, Balmyle, Perth  
 1909 Young, John, Balmyle, Perth  
 1894 Young, Robert, Dunning



## 3.—STIRLING DISTRICT.

## EMBRACING THE

COUNTIES OF CLACKMANNAN, DUMBARTON, PERTH  
(STIRLING SHOW DIVISION), AND STIRLING.

## CLACKMANNAN.

Admitted  
 1880 Alexander, James, Box No. 2, Post Office, Alloa  
 1900 Allan, John, Meadowland, Clackmannan  
 1910 Anderson, James, Garthorn, Clackmannan  
 1878\*† Balfour, of Burleigh, Lord, K.T., Kennet, Alloa  
 1909 Bean, Alex., jun., Sheriffmuirlands, Causewayhead, Stirling  
 1909 Bean, Andrew, Sheriffmuirlands, Causewayhead, Stirling  
 1889 Blair, Charles, Glenfoot, Tillinoultry  
 1905 Bleloch, James, Estate Office, Dollarbeg, Dollar  
 1891 Cairns, John, Balquharn, Menstrie  
 1910 Christie, Miss Ella R., of Cowden, Dollar  
 1877 Crawford, John, High Street, Alloa  
 1910 Cunningham, Robert E., 49 Primrose Street, Alloa  
 1892 Dobie, W. H., of Dollarbeg, Dollar  
 1890 Drysdale, William, King o' Muirs, Alloa  
 1899 Fisher, John, Jellyholm, Alloa  
 1897 Forbes, Robert, Kennet, Alloa  
 1901 Gall, Thomas, Prince of Wales Hotel, Alloa  
 1910 Grant, James, Viewforth, Alloa  
 1900 Gray, Henry, Hawkhill, Kincardine-on-Forth  
 1900 Gray, Thomas, Seed and Manure Merchant, Alloa  
 1909 Grindlay, William, Grassmainston, Clackmannan  
 1896 Haig, Alex. P., Blairhill, Rumbling Bridge  
 1886 Haig, Robert, Dollarfield, Dollar—*Free Life Member*, 1887  
 1878 Hare, Colonel, Blairlogie, Stirling  
 1910 Henderson, John, Westerton, Dollar  
 1902 Henderson, Thos., Nether Corsebridge, Alloa  
 1906 Inglis, George C., M.R.C.V.S., 28 Mar Street, Alloa  
 1909 Izet, A., of Ballilisk, Muckart, Dollar  
 1907 Kemp, Wm., 18 Erskine Street, Alloa  
 1900 Kerr, J. E., Harvieston Castle, Dollar  
 1892 Kinross, D. A., Hillend, Clackmannan  
 1888 Lang, James, Linnbank, Dollar  
 1906 Lawson, Robt., 49 Primrose Street, Alloa  
 1909 Lucas, John, Ladysneuck, Stirling  
 1909 Macfarlane, Edward H., Gartgreenie, Forrest Mill, Clackmannan  
 1896 M'Laren, William, Inch Farm, Kincardine-on-Forth  
 1891 M'Laren, William, Longcarse, Alloa  
 1909 M'Laren, W. F., Naemoor, Rumbling Bridge, Dollar  
 1898 M'Nab, Alexander, Middleton Kerse, Menstrie  
 1871 Macnaughton, Wm., 6 Kellie Place, Alloa

Admitted  
 1890 Mair, William, Gartary, Clackmannan  
 1890† MAB and KELLIE, The Earl of, Alloa Park, Alloa  
 1900 Meikle, John, Woodside, Dollar  
 1893 Miller, John M., Sheardale House, Dollar  
 1909 Mitchell, James, Arns, Clackmannan  
 1900 Moir, Arch. F., Bank Street, Alloa  
 1873 Moir, James M'Arthur, of Hillfoot, Dollar  
 1900 Morgan, James, Bows Farm, Alloa  
 1882 Moubray, John James, of Naemoor, Dollar  
 1908 Munro, Alex. (Wingate & Lowe), Alloa  
 1893 Peebles, James, Alloa  
 1904 Prentice, John W., Craigrie Farm, Clackmannan  
 1869 Robertson, Rev. A. Irvine, Clackmannan  
 1907 Rowan, Andrew, Devon Vale Inn, Blairingone, Dollar  
 1900 Roxburgh, Alex. L., Solicitor, Alloa  
 1909 Seton, J. W., Cowden Farm, Dollar  
 1899 Shields, John, Ludgate, Alloa  
 1891 Sinton, F. J., Dollarbank, Dollar  
 1902 Srvewright, Sir James, Tulliallan Castle, Kincardine-on-Forth  
 1899 Smith, Andrew, Hilton, Alloa  
 1881 Stirling, Robert, Parkhead, Alloa  
 1897 Sutherland, R. M., Solsgirth, Dollar  
 1909 Taylor, Luke, Alloa Park, Alloa  
 1909 Thomson, A. D., Greenfield, Alloa  
 1900 Thomson, David, of Greenfield, Alloa  
 1890 Waddell, Robert, Bridge Street, Dollar  
 1899 Walker, James, Lornshill Farm, Alloa  
 1900 Watson, John, Craigdhu, Clackmannan  
 1900 Westwood, John, Loanside Farm, Clackmannan  
 1909 Westwood, William, Inch of Ferryton, Clackmannan  
 1910 Wilson, James L., Muirfoot Farm, Tillinoultry  
 1902 Wilson, John C., Tulliallan Castle, Kincardine-on-Forth  
 1886 Wilson, John E., Burnside, Alva  
 1909 Wilson, W. S., Wester Muirhead, Dollar  
 1879 Younger, George, Brewer, Alloa  
 1889 Younger, James, Arns Brae House, Alloa

## DUMBARTON.

1892 Allan, A. Y., Aitkenbar, Dumbarton  
 1906 Baird, Montagu William, Keppoch, Cardross  
 1897 Bauchop, John, Auchentulloch, Alandria, N.B.  
 1897 Begg, Malcolm, Blairnie, Luss  
 1904 Burns, Alan, of Cumbernauld, Cumbernauld, Glasgow  
 1906 Cameron, Charles Alex., Torloisques, Drumchapel, Glasgow

Admitted

- 1876 CAMPBELL, Sir Arch. S. L., of Succoth,  
Bart., Garscube, Maryhill  
1888 Campbell, J. Adair, Broomley, Alex-  
andria, N.B.  
1889 Campbell, Wm. Middleton, of Col-  
grain, Helensburgh (28 Rood Lane,  
London)  
1899 Chapman, William, Ballymenoch, Glen-  
fruin, Helensburgh  
1899 Chrystal, Wm. J., of Auchendennan,  
Arden, Dumbartonshire  
1905 Colquhoun, Arch. G. Campbell, Gars-  
cadden, Drumchapel  
1874 Colquhoun, Rev. J. E. Campbell, of  
Killermont, Garscadden, Drumchapel  
1885 Davie, William, jun., Main Street, Alex-  
andria, N.B.  
1908 Dods, J. H., Cairnhill, Bearsden, Glas-  
gow  
1868 Douglas, Archibald C., of Mains, Miln-  
gavie  
1881 Duncan, James, of Auchendavie, Kirk-  
intilloch  
1881 Duncan, John, of Auchanabee, Croy  
1881 Duncan, Thomas, Dullatur, Cumber-  
nauld  
1907 Dykes, William, Craggan, Arrochar  
1857 Ewing, Alexander Crum, of Strathleven,  
Dumbarton  
1896 Ferguson-Buchanan, Colonel G. J., of  
Auchentorlie, Bowling  
1880 Findlay, R. E., of Boturich, Balloch  
1897 Fleming, Alex., Drumkinnon, Alex-  
andria, N.B.  
1909 Fulton, John M., Stronafyne, Arrochar  
1911 Gilmour, Allan (of Glencaseley, Suther-  
land), Woodbank, Alexandria, N.B.  
1881 Gilmour, William E., Woodbank, Alex-  
andria  
1896 Gray, James, Commercial Bank House,  
Kirkintilloch  
1862 Hendrie, John, Glenbank House, Lenzie  
1897 Howie, James L., Clachan, Roseneath,  
Glasgow—*Free Life Member*  
1878 Ker, T. Ripley, of Dougalston, Miln-  
gavie  
1899 Kippen, William James, of Westerton,  
Balloch  
1909 LEITH-BUCHANAN, Sir Alex. Wellesley,  
of Ross, Bart., Ross Priory, Balloch,  
S.O.  
1875 Lumsden, James, of Arden, Dumbarton-  
shire  
1905 Lumsden, James Robert, Arden, Dum-  
bartonshire  
1911 M'Dougall, Wm. Harold Hunter, Struan,  
Bearsden  
1892 Macfarlan, Coll Jas. Turner, Stronafyne,  
Arrochar  
1892 Macfarlan, Farlan, Faslane, Gareloch-  
head  
1878 M'Farlane, Colin, Strone, Glenfruin,  
Garelochhead  
1878 M'Farlane, Duncan, Greenfield, Gare-  
lochhead  
1905 M'Kean, John, of Dam of Aber, Alex-  
andria, N.B.  
1885 Mackenzie, John, Willow Burn, Glynder  
1889 Mackenzie, Robert, of Caldavran, Bal-  
loch, N.B.  
1897 Mackenzie, Robert C., of Edenbarnet,  
Duntocher  
1909 M'Naught, Arch., 207 Middleton Street,  
Alexandria, N.B.  
1883 Murray, David, LL.D., Moore Park,  
Cardross  
1881 Park, Alex., Ingleside, Lenzie  
1888 Rankin, Robert, Bodanheath, Condorrat,  
Glasgow  
1894 Russell, Wm., Ard-Luss, Helensburgh

Admitted

- 1907 Scott, Crawford A., Estate Office,  
Bearsden  
1897 Sinclair, Robert, Post Office, Tarbet,  
Loch Lomond  
1897 Snodgrass, James, Millig, Helensburgh  
1903 Stewart, W., Milton, Duntocher  
1907 Taylor, Joseph B., Kildrune Farm,  
Cumbernauld  
1894 Weir, James, Woodilee Farm, Lenzie—  
*Free Life Member*  
1882 Whitelaw, Alex., of Gartshore, Kirk-  
intilloch  
1856 Young, James, Broadholm, Duntocher

PERTH

(STIRLING SHOW DIVISION).

- 1900 ANCASTER, Earl of, Drummond Castle,  
Crieff  
1888 Anderson, A. H., Kippendavie Estate  
Office, Dunblane  
1909 Anderson, John A., Parkside, Madderty,  
Crieff  
1910 Angus, Charles, Springpark, Dunblane  
1900 Bailingall, David, Blair Drummond  
1908 Barty, Alex. Boyd, LL.B., Solicitor,  
Dunblane  
1904 Barty, James, LL.B., Solicitor, Dun-  
blane  
1878 Barty, James W., LL.D., Solicitor, Dun-  
blane  
1888 Blackett, J. S., Inverard, Aberfoyle  
1906 Brebner, Robert Fred., Estate Office,  
Strathallan, Auchterarder  
1899 Bryce, William, West Cambusdrennie,  
Stirling  
1899 Buchanan, John Hamilton, of Leny  
(4 Doune Terrace, Edin.)  
1908 Cairns, James, Conlshill, Auchterarder  
1900 Cairns, Robert, St Mungo's, Auchter-  
arder  
1861 Cairns, William, Belhie, Auchterarder  
1900 Cairns, William, Dalchruin, Comrie  
1904 Calder, George A., Rokeby, Dunblane  
1906 Cameron, Allan, Kellator, Crianlarich  
1900 Cameron, Duncan, Bow, Dunblane  
1901 Cameron, R. W. G., Drumharvie, Auch-  
terarder  
1909 Cameron, William, Inverardoch Mains,  
Dounie  
1901 CAMPBELL, Col. Sir Alex., Bart., of KR-  
bryde, Dunblane (address c/o Messrs  
Barty, Dunblane)  
1896 Campbell, James, Tullich, Kilm  
1905 Campbell, Colonel John Hasluck, of  
Inverardoch, Dounie  
1900 Campbell, Samuel, Locherlour, Crieff  
1909 Carmichael, William, Butcher, Dunblane  
1880 Carnegie, James, of Stronvar, Bal-  
quhadder  
1898 Carr-Ellison, J. S., Ledard, Aberfoyle  
1872 Carrick, T. A., Easter Cambusdrennie,  
Stirling  
1881 Christie, Gilbert, Auchlyne, Lenzie  
1889 Cochran, Wm., Overdale, Dunblane  
1909 Crabbe, Miss Ada M., Bishopton, Port  
of Monteth  
1879 Craig, John, Innargeldie, Glasgow—  
*Free Life Member*  
1880 Craig, Wm., Comlemackie, Auchter-  
arder—*Free Life Member*  
1888 Crawford, Thos., Drumchapel, Crieff  
1884 Dawson, A., Auchterarder, Port of Monteth  
1894 Dempster, John, Bishopton, Glasgow  
1896 Dewar, James, Port of Monteth  
1898 Dewar, James, Kippen Station

## Admitted

- 1909 Dickie, David, Newbigging, Fowlis Wester, Crief  
 1899 Dron, W. A., Criefvechter, Crief  
 1905 Drummond, Arthur Hay, of Cromlix, Dunblane  
 1869 Drummond, Col. Home, of Blair Drummond, Stirling  
 1905 Duncan, James, Culticheldoch, Muthill  
 1900 Duncan, John L., Mill of Ogilvie, Blackford  
 1882 Dundas, Colin M., Commander R.N., of Ochertyre, Stirling  
 1907 Dundas, David J. W., Craigarnhall, Bridge of Allan  
 1900 Ewing, George T., Pitkellony, Muthill  
 1903 Ferguson, Alexander, Lundie Farm, Doune  
 1898 Ferguson, James, Glenartney, Comrie  
 1908 Ferguson, John, Mailerbeg, Comrie  
 1909 Finlayson, George W., Kirkton, Culross  
 1902 Fisher, Robert S., Baltimore, Balquhider  
 1887 Fletcher, Angus, Woodvale, Callander  
 1909 Forrest, Alex., Milton of Abercainry, Crief  
 1904 Gardiner, Wm., Low Bank, Auchterarder  
 1910 Gibson, Wilfred Lawson, Balhaldie House, Dunblane  
 1905 Gilmour, John, General Merchant, Blackford  
 1881 Graham, A. G. Maxton, yr. of Cultuquhey, Crief  
 1900 Graham, George, Faraway, Kippen Station  
 1897 Grahame, A. M. B., Arntomy, Port of Menteith  
 1897 Graham-Stirling, Captain C. Home, of Strowan, Crief  
 1910 Grieve, Robert, Mornish, Killin  
 1901 Henderson, James W., Clarkton Farm, Doune  
 1895 Holmes, Robert K., Netherton, Doune, Perthshire  
 1896 Jackson, Thomas C., Rinachlach, Port of Menteith  
 1884 Johnston, J. S., Fintalich, Muthill  
 1905 Lauder, Andrew Scott, Keir Mills, Dunblane  
 1902 Lauder, John, Mill of Keir, Dunblane  
 1907 Lennox, James, Redhills, Balgowan, Crief  
 1907 Lennox, Wm., Easter Dowald, Crief  
 1907 M'Ara, Robert, Brae of Monzie, Crief  
 1887 M'Callum, Wm. R., Ballig, Crief  
 1900 M'Cowan, James, Ashentree, Kippen Station  
 1896 M'Diarmid, James, Ardnacraggan, Callander  
 1902 M'Donald, John, Nether Shannochill, Gartmore Station  
 1890 MacEwen, Daniel, Merchant, Callander  
 1888 M'Ewen, John, Wester Cambushinnie, Kinbuck, Dunblane  
 1894 M'Ewen, John, Land-Steward, Thornhill, Muthill  
 1897 MacEwen, Wm., Mains of Boquhapple, Thornhill, Perthshire  
 1897 Macfarlane, Andrew, Chalmersston, Stirling  
 1891 Macfarlane, Charles, East Brackland, Callander  
 1886 Macfarlane, Duncan, M.R.C.V.S., Doune  
 1906 M'Farlane, G., Arnieve, Blair Drummond  
 1900 M'Feat, Robert, Offers Farm, Gargunnoch  
 1910 M'Gregor, Robert, Merchant, Dunblane  
 1909 M'Idowie, James, Easterton, Doune  
 1909 MacIntosh, D., West Mains of Colquhalzie, Machany

## Admitted

- 1900 M'Intyre, Peter, Tighnabla, Comrie  
 1910 Mackenzie, James, Dunblane Hotel, Dunblane  
 1881 Mackie, Peter, East Kirkton, Auchterarder  
 1896 M'Laren, A., Dall, Ardeonaig, Killin  
 1909 M'Laren, Donald, Bracklinn, Callander  
 1903 M'Laren, Rev. John, M.A., Tulliallan Manse, Kincardine-on-Forth  
 1909 M'Laren, John, West Third, Gartmore  
 1910 M'Laren, John, Torrance, Dunblane  
 1888 M'Laren, W. D., Drummore, Doune  
 1871 M'Naughton, John, Inverlochlaire, Lochearnhead, R.S.O.  
 1879 M'Naughton, Robert, of Cowden, Comrie  
 1909 M'Naughton, Robert, Creggan, Strathyre  
 1899 M'Nee, John, Colony Farm, Crief  
 1909 Mailer, John, Langbank, Doune  
 1903 Marshall, Hugh, Stirling Arms Hotel, Dunblane  
 1900 Marshall, William, Glenwhinnie, Dunblane  
 1872 Marshall, W. H., of Callander (25 Heriot Row, Edinburgh)  
 1909 Miller, James, Abbey Farm, Crief  
 1909 Miller, Robert, Overardoch, Braco, Perthshire  
 1900 Mitchell, James P., Carrat, Stirling  
 1900 Mitchell, John, Greenyard, Dunblane  
 1891 Mitchell, William, Blackdub, Stirling  
 1902 Moir, Wm., Netherton, Thornhill, Stirling  
 1900 Monteath, Robert, Biggs, Blackford  
 1898 Muirhead, John, Briarlands, Blairdrummond  
 1875 Murdoch, George Burn, Gartincaber, Doune—Free Life Member  
 1903 Murray, James, Munnieston, Thornhill, Stirling  
 1903 Murray, John, Ivybank, Dunblane  
 1862 MURRAY, Sir Patrick Keith, of Ochertyre, Bart., Crief  
 1894 Newbigging, Alex., of Dalchonzle, Comrie  
 1892 Pagan, John S., Braendam, Thornhill, Perthshire  
 1909 Page, Andrew R., County Buildings, Dunblane  
 1900 Paterson, Alex., Hill of Drip, Stirling  
 1909 Paterson, George, Watston, Doune  
 1890 Paterson, James, Burnbank, Blair Drummond, Stirling  
 1872 Paterson, James, Lochend Farm, Port of Menteith  
 1882 Paterson, John, Kirkton, Tyndrum  
 1905 Paterson, John, Wester Frew, Kippen Station  
 1892 Paterson, Robert, Hill of Drip, Stirling  
 1878 Paton, Robt., Mosscoot, Dunblane  
 1909 Pollock, William, Topfold, Blackford, Perthshire  
 1882 Ratray, Patrick, Kanishee, Dunblane  
 1900 Reid, Andrew T., Auchterarder House, Auchterarder  
 1910 Reid, John Thomas Graham, Hillside of Rew, Doune  
 1910 Richmond, James, Kippenross House, Dunblane  
 1909 Ritchie, Alex., Cardross, Port of Menteith  
 1909 Robertson, James, County Buildings, Dunblane  
 1905 Robertson, Robt., Mill of Drummond, Muthill  
 1889 Rodger, James, Keir Estates Office, Dunblane  
 1896 Rogerson, James P., Fendoch, Crief  
 1857 Rollo, Lord, Duncrub House, Dunning

Admitted

- 1888 ROLLO, The Hon. The Master of  
1900 Ross, Charles D., 14 High Street, Crieff  
1909 Scobie, John J., Drumpark, Trinity Gask, Auchterarder  
1894 Scott, William, Upper Lanrick, Doune  
1902 Springsour, John, Doune Lodge, Doune  
1890 Sharp, George K., Middleton House, Blackford  
1904 Sharp, James, Baillielands, Auchterarder  
1881 Sharp, Jas. R., Viewfield, Blackford  
1888 Sharp, John, South Forr, Crieff  
1900 Sharp, Thomas M., Bardrill, Blackford  
1909 Shaw, John, Middleton of Culdees, Muthill  
1882 Sheppard, Rev. H. A. G., of Rednock Port of Monteith  
1870 Speir, R. T. N., Culdees Castle, Muthill  
1876 Stark, M. C., Westerton Farm, Doune  
1909 Stewart, Mrs. Alex., Springfield Terrace, Dunblane  
1900 Stewart, Alex., Corscapple, Dunblane  
1899 Stewart, Duncan, of Milhill, Crieff  
1904 Stewart, D. Y., Carse of Trowan, Crieff  
1895 Stewart, John, Bochastle, Callander  
1882 Stewart, Joseph, Royal Hotel, Tyndrum  
1889 Stirling, Arch., of Keir, Dunblane  
1900 Stirling, James, Dykedale, Dunblane  
1903 Stirling, James, Kippendavie Mains, Dunblane  
1900 Stirling, John Alex., of Kippendavie, Dunblane  
1899 Stirling, John W., Nether Cambushinnie, Braco  
1909 Strang, Wm., Kintochoer, Crieff  
1910 Thomas, Robert, merchant, Dunblane  
1904 Turner, Joseph, of Greenhill, Greenloaning  
1900 Walker, William R., Tlarrathur, Killin  
1900 Watt, John, Burnside, Braco, Perthshire  
1909 Wedderspoon, William, Carsebreck, Blackford  
1909 White, John, Newraw, Kincardine-on-Forth  
1905 Whitelaw, Graeme Alex., Strathallan Castle, Machany  
1861 Williamson, Col. D. R., of Lawers, Crieff  
1899 Willison, Campbell, Acharn, Killin  
1900 Willison, Douglas, Acharn, Killin  
1864 Wilson, Alexander, Alford House, Dunblane  
1908 Wilson, Peter, Mill of Gask, Auchterarder  
1907 Wilson, William, Ellasles, Dollar  
1909 Wilson, Wm., Mains of Balhaldie, Braco  
1909 Wylie, James, Stockbridge, Dunblane  
1904 Young, David, Milton of Gask, Auchterarder

STIRLING.

- 1905 Adam, James, Muir Park, Denny  
1907 Aikman, Charles, Chartershall Farm, St Ninians  
1900 Aitken, Thomas, The Grove, St Ninians, Stirling  
1901 Aitkenhead, Walter, Meadbank, Polmont  
1878 Aitkenhead, Wm. (Carron Company), Broughlands, Carron  
1909 Anderson, John, Bailmons, Airth, Larbert  
1910 Archibald, William, Newmills, Milton of Campsie

Admitted

- 1907 Baird, John Calderwood, Birchfield, Falkirk  
1900 Barnes-Graham, Allan, yr. of Craigallian, Milngavie  
1909 Bayne, David, Cowall Street, Stirling  
1909 Binnie, Robert, Pleau, Bannockburn  
1899 Blackburn, Colonel Peter, of Killearn, Killearn House, Glasgow  
1888 Bolton, Edwin, of Carbrook, Larbert  
1909 Bowie, Robert, Gilmeadowland, Linlithgow  
1893 Boyle, A. H., Banknock House, Castlecary  
1888 Brown, Charles, Kerse Estate Office, Falkirk  
1900 Brown, John, Dalderse, Falkirk  
1882 Brown, John A. H., Dunipace, Larbert  
1905 Brown, John, 51 Murray Place, Stirling  
1905 Brown, Robert, Waukmilton Farm, Linlithgow  
1897 Buchan, Robert, Dalgrain, Falkirk  
1897 Buchanan, Andrew C., Whitehouse, Stirling  
1909 Buchanan, Charles A., Deroran, Stirling  
1877 Buchanan, D. M. B., of Boquhan, Balfour  
1890 Buchanan, John, Warwick House, Bridge of Allan  
1876 Buchanan, Robert, Westerton, Killearn  
1882 Buntine, J. R., Torbrex House, Stirling  
1891 Cairns, William, Muirpark, Cambus  
1903 Campbell, Dr Robert B., Stirling District Asylum, Larbert  
1909 Carrick, William, Baad Farm, Stirling  
1900 Carswell, John, Graham Road, Grahamston, Falkirk  
1910 Chadwick, C. Rowland, M.R.C.V.S., Falkirk  
1878 Christie, James, Coxethill, St Ninians  
1900 Clark, Alex., Stonehouse, Bothkennar, Carron  
1909 Clark, John, Hardlands, Bothkennar, Larbert  
1894 Clarkson, Robert, Avondale, Polmont  
1882 Couper, James, of Craigforth, Stirling  
1899 Crawford, Ewing R., of Auchentorrig, Buchlyvie  
1898 Crum, William G., Auchenbowie, Bannockburn  
1909 Cunningham, Andrew, Haugh of West Grange, Stirling  
1909 Cunningham, William, West Grange, Stirling  
1900 Dewar, Andrew, 10 Royal Gardens, Stirling  
1900 Dewar, John W., King's Park, Stirling  
1899 Dewar, Peter, King's Park, Stirling  
1908 Donaldson, W. Betts, Dunkyan, Killearn  
1906 Downie, Robert, Knock O'Ronald, Gar-gunnock  
1890 Drummond, James W., Seed and Nursery Establishment, Stirling  
1908 Drysdale, John, Zetland School, Grange-mouth  
1901 Eadie, John, Blair Mains, Stirling  
1881 Edmond, John, of Galmuir, Bannockburn  
1889 Edmonstone, Sir Arch., of Dunrobin, Barh, Dunrobin Castle, Banffshire  
1862 Erskine, H. D., of Cardross, Stirling  
1882 Ewing, Sir A. R. Orr, of Bellinnoch, Barh, Killearn  
1906 Fisher, Daniel, Garthmill, Buchlyvie  
1897 Finlayson, Wm., Throes, Stirling  
1860 Forbes, William, of Callendar, Falkirk  
1909 Gibb, Allan, Broomfield, Callendar House, Callendar Station  
1894 Gibson, David, of Airthrey Castle, Glasgow

## Admitted

- 1894 Graham, Jas. D., Airthrey Castle, Bridge of Allan  
 1873 Gray, Andrew, West Plean, Bannockburn  
 1891 Gray, James, Birkenwood, Gargunnoch  
 1901 Gray, John (Gray & Co., Grain Merchants), Stirling  
 1910 Greig, Andrew S., 42 Broad Street, Stirling  
 1897 Grigor, John, Factor, Sauchie Burn, Stirling  
 1897 Guthrie, D. W., Airthrey Croft, Bridge of Allan  
 1905 Haldane, W. A. D., Iresdell, Killearn  
 1909 Hamilton, Miss, Dunmore Park, Larbert  
 1909 Hamilton, C. A., Dunmore Park, Larbert  
 1873 Henderson, A. W., Bridge of Allan  
 1900 Hetherington, William, 27 Port Street, Stirling  
 1910 Hope, Thomas, East Green Yards Farm, Bannockburn  
 1898 Horsburgh, Charles E., Blairquhosh, Strathblane  
 1910 Hosie, William, Castlehill, Colzium, Kilsyth  
 1881 Jaffrey, William, Easter Offerance, Buchlyvie  
 1909 Johnston, T. W. R., 'Journal' Office, Stirling  
 1875 Kay, Charles, Mill Farm, Gargunnoch  
 1909 Kerr, James, Easter Culmore, Kippen Station  
 1905 King, Andrew B., Antermoney House, Milton of Campsie  
 1868 King, C. M., Antermoney House, Milton of Campsie  
 1857 King, Sir James, of Campsie, Bart., Carstairs House, Carstairs Junction  
 1894 Kinross, Henry (J. Gartshore & Sons, Grain Merchants), Stirling  
 1864 Kinross, John, St Leonards, Causwayhead, Stirling  
 1909 Laird, John, Auchencroch Mains, Milton of Campsie  
 1909 Lang, John, Culbeg, Gargunnoch  
 1909 Lang, Robert, Fleuchams, Gargunnoch  
 1900 Latta, Robert M., Douglaston, Milngavie  
 1880 Learmonth, George G., Green Bank House, Falkirk  
 1901 Learmonth, Jas., 2 Bank Street, Falkirk  
 1899 Leekie, John, Inchwood, Milton of Campsie  
 1891 Lowe, P. R., Abbotsford, Bridge of Allan  
 1900 Macadam, Archibald, Blairero, Drymen Station  
 1900 Macadam, John, Bank House, Balfour  
 1909 McCallum, Daniel, Broadlees, St Ninians, Stirling  
 1909 McEwan, Daniel, jun., Stirling  
 1909 McEwan, Duncan, Sunnyslaw, Bridge of Allan  
 1894 McFarlan, Parlan, Shore Wharf, Stirling  
 1901 Macfarlane, James, Millhall, Stirling  
 1891 Macfarlane, James, Oxhill, Buchlyvie  
 1909 McFarlan, Robert, Springkerse, Stirling  
 1886 Macfarlane, Robt. C., Craigforth Mills, Stirling  
 1891 McKerracher, Daniel, Raploch Farm, Stirling  
 1869 McKinlay, John, Middlestrath House, Avonbridge  
 1873 McLachlan, Archibald, 4 Irvine Place, Stirling  
 1887 McLaren, D., Cornton, Stirling  
 1891 McLaren, James, Alton, Stirling  
 1909 McLaren, William, Albert Place, Stirling  
 1903 Maclean, Donald, Peatriggerend House, Slamannan

## Admitted

- 1909 M'Nee, Thomas, Nicolton, Polmont  
 1909 Malcolm, William Maurice, Dunmore, Larbert  
 1880 Malcolm, W. T., Dunmore, Larbert  
 1901 Marshall, Allan, Mid Lecroft, Bridge of Allan  
 1909 Marshall, James, Overtown, Grange-mouth  
 1909 Matthew, William, Auchenbowie Mains, Bannockburn  
 1882 Melville, John H., Eriden, Falkirk  
 1909 Mitchell, Alexander, Longlea, Bridge of Allan  
 1885 Mitchell, James, Bannockburn House, Bannockburn  
 1905 Mitchell, Stephen, of Boquhan, Kippen  
 1881 Moir, Alexander, Nether Carse, Gargunnoch  
 1901 Monteath, John, Wright Park, Kippen  
 1876\*Montross, The Duke of, K.T., Buchanan Castle, Drymen  
 1876 More, John, Fordhead, Kippen  
 1882 Morris, J. M., of Gogar, Stirling  
 1880 Morton, David, 1 Pitt Terrace, Stirling  
 1903 Morton, David L., King Street, Stirling  
 1908 Murray, Major A. B., of Polmaise, Stirling  
 1908 Murray, R. A., of Pirniehall, Drymen Station  
 1908 Murray, J. W., Catter House, Drymen  
 1895 Murray, W. Watson, Catter House, Drymen  
 1899 Neilson, William, Haining Valley, Linlithgow  
 1893 Oliver, Lieut.-Col. Wm. James, 18 Victoria Place, Stirling  
 1905 Orr, Andrew, Coldrach, Drymen  
 1896 Paton, Thomas, 10 Victoria Square, Stirling  
 1909 Paul, David, Haughs of Airth, Bothkennar, Larbert  
 1895 Peareth, John Lennox, Lennox Castle, Campsie Glen, Stirlingshire  
 1901 Peat, Alex., Manor Farm, Blairlogie, Stirling  
 1909 Peat, William, Manor Farm, Stirling  
 1881 Pollock, J. J., of Auchinaden, Strathblane  
 1887 Pullar, Edmund, Coneyhill House, Bridge of Allan  
 1891 Rawding, George, Munglehead Road, Bainsford, Falkirk  
 1908 Reid, Thos. L., Royal Bank of Scotland, Stirling  
 1899 Rennie, William, Parkhead, Slamannan  
 1910 Reynard, John Napier, Manuel House, Linlithgow  
 1909 Risk, James, Gowstana, Buchlyvie  
 1900 Risk, John, Carlton, Stirling  
 1900 Risk, John, Culmore, Kippen, Stirling  
 1852 Ritchie, William, Janeville, Grange-mouth  
 1909 Robb, Henry, 2 Dumbarton Road, Stirling  
 1901 Robertson, Alexander, Estate Office, Polmaise, Stirling  
 1908 Robertson, Dan., The Brewery, Falkirk  
 1909 Robertson, John, Borrowmeadow, Stirling  
 1910 Rowan, George Francis Connal, of Melklewood, Stirling  
 1873 Sands, James, Greenfoot, Gargunnoch  
 1881 Scott, Rev. John, Camelon Manse, Falkirk  
 1884 Scott, Thomas, South Woodend, Castle-cary Station, Glasgow  
 1872 Seoular, John, Crook, Stirling  
 1899 Shorthouse, George W., Sauchie Estates Office, Stirling

Admitted

- 1893 Smith, James Kemp (Messrs Kemp & Nicholson), Stirling  
 1889 Speedie, John C., Stirling  
 1909 Steel, John, Westerton of Cowie Farm, Bannockburn  
 1902 Steel-Maitland, A. D., of Sauchie, Stirling (72 Cadogan Square, London, S.W.)  
 1901 Steel-Maitland, Mrs. of Barnton, Sauchie Burn, Stirling  
 1881 STEWART, Sir Alan H. Seton, of Touch, Bart., Stirling  
 1897 Stevenson, Arch., Golden Lion Hotel, Stirling  
 1882 Stevenson, John, Castlecary Station, Glasgow  
 1909 Stewart, James, Hill of Kinnaird, Larbert  
 1909 Stirling, James S., Knockhill, Bridge of Allan  
 1905 Stirling, Commander Millar, of Craigharnet, R.N., Campsie Glen  
 1909 Strang, William, Avonbank, Polmont  
 1877 Taylor, Robert, Solicitor, Stirling  
 1879 Thomson, James, Coach Works, Stirling  
 1906 Thomson, John Jas., Myrehead, Linlithgow

Admitted

- 1897 Thomson, Robt., Queenshaugh, Stirling  
 1900 Thomson, William, Cauldbarns, Stirling  
 1904 Thornley, Thomas, Camelon Works, Falkirk  
 1910 Tod, William P., Netherley, Stirling  
 1875 Ure, George R., Hope Park, Bonnybridge  
 1898 Wallace, T. Douglas, Callendar Estates Office, Falkirk  
 1903 Walls, James, Muirton, Stirling  
 1878 Walls, Robert, Kerse Mills, Stirling  
 1909 Wardlaw, A. M., Solicitor, Bridge of Allan  
 1877 Watson, John, Skipperton, Denny  
 1871 Waugh, Allan, Avonbridge, Falkirk  
 1907 Waugh, James, Avon Grain Mills, Avonbridge  
 1881 Wilson, David, of Carbeth, Killearn  
 1881 Wilson, William, Viewforth House, Bannockburn  
 1891 Wilson, William Ralph, Hill Park, Bannockburn  
 1909 Young, Alex., Craigview, Causewayhead, Stirling  
 1878 Young, William, Taylorton, Stirling  
 1896 Yuille, Andrew B., Bellevue, Bridge of Allan

NUMBER OF MEMBERS, 502.

## 4.—EDINBURGH DISTRICT.

## EMBRACING THE

COUNTIES OF EDINBURGH, HADDINGTON, AND LINLITHGOW.

## EDINBURGH.

Admitted	Admitted
1905 Aikman, James Arch., 6 Glencairn Crescent	1879 Beattie, James, 31 Mayfield Road
1901 Ainslie, James, Tor, Murrayfield, Edinburgh	1878 Beattie, W. J. P., Edinburgh Hydro., Slateford
1899 Ainslie, Robert, Dodridge, Ford, Dalkeith	1882 Belfrage, A. J., Durham House, Portobello
1865 Aitchison, Lieut.-Col., of Drummore, Musselburgh	1895 Bell, David, Mervue, Ferry Road
1907 Aitchison, Thos., 60 Coltbridge Avenue	1907 Binnie, Alex., 115 Dalry Road
1899 Aitken, Alfred N. G., S.S.C., 12 Queen Street	1906 Bishop, Thomas, 35 Charlotte Street, Leith
1907 Aitken, Charles, 38 Braid Crescent	1899 Blackwood, Geo. Wm., Gogar Mount, Ratho Station
1889 Alexander, A., 34 St Andrew Square	1899 Blackwood, Jas. Hugh, Gogar Mount, Ratho Station
1908 Alexander, Wm., Preston Hall, Ford, Dalkeith	1862 Blackwood, William, 45 George Street
1908 Allison, John, Buccleuch Street, Dalkeith	1899 Blyth, Benjamin Hall, C.E., 17 Palmerston Place
1899 Allison, John P., D'Arcy, Dalkeith	1907 Borthwick, A. W., Royal Botanic Garden, Inverleith Row
1899 Allison, Robert Barclay, W.S., 11 South Leamonth Gardens	1858 Borthwick, W. H., Crookston House, Heriot
1875 Allan, James, jun., 2 Walker Street	1905 Boyd, Thomas, 36 Salamander Street, Leith
1873 Allan, John, 22 St Albans Road	1857 Brockley, Robert M., Gourlaw, Rosewell
1906 Allan, John, 2 Commercial Street, Leith	1909 Brodie, John, Cross Keys Hotel, Dalkeith
1892 Allan, Thomas, Clifton, Mid-Calder	1863 Brown, Adam, 2 Arboretum Road
1899 Allan, William, Redhaughs, Corstorphine	1907 Brown, John, Jedville, Corstorphine
1898 Allison, James, Claylands, Ratho	1881 Brown, Richard, C.A., 23 St Andrew Square
1899 Allison, R., Lauriston, Davidson's Mains	1892 Brown, Robert, Selms Farm, Kirknewton
1899 Alston, James, Heriot Mill, Heriot	1882 Brown, Wm., Currievale, Currie
1902 Amour, James, Cramond Bridge	1903 Brown, Wm., Vellore, Polmont Station
1877 Anderson, Charles, 377 High Street	1885 Brownlee, George, Longthorn, Dalkeith
1884 Anderson, J. R., W.S., 52 Palmerston Place	1877 Bruce, E., 26 Greenside Place
1884 Anderson, R. K., 377 High Street	1900 Bruce, William, B.Sc., Edinburgh and East of Scotland College of Agriculture, 18 George Square— <i>Free Life Member</i>
1881 Anderson, W. M., 13 Wester Coates Gardens	1873 Bryce, And., Craigentinny, Edinburgh
1899 Anderson, W. W., Colzium, Kirknewton	1858*† Buccleuch and Queensberry, The Duke of, K.T., Dalkeith House, Dalkeith
1873 Andrew, Robert, 38 Haymarket Terrace	1902 Buchan, Andrew, East Ingliston, Ratho Station
1900 Archibald, Adam, Overshields, Stow	1902 Buchan, Robert, Bonnington Farm, Wilkinston
1885 ARDWALL, Hon. Lord, 14 Moray Place	1882 Buchanan, Ben., Springbank, Corstorphine
1909 Armstrong, John, Saughton Vale, Murrayfield	1892 Buchanan, Charles, Land Steward, Penicuik
1887 Armstrong, W. J., 57 Manor Place	1899 Buchanan, James R., Adambræ, Mid-Calder
1894 Babington, William, 110 George Street	1894 Buchanan, Robert, Livingston Mill, Livingston, Mid-Calder
1893 Bailey, Col. E., Professor of Forestry, Edinburgh University, 7 Drummond Place	1884 Burn, C. M. P., Prestonfield House, Edinburgh
1902 Baillie, John, Rosebank, Currie	1906 Byres, William, Baadamill, West Calder
1894 Baird, Archibald, M.R.C.V.S., 40 York Place	1878 Caird, Alex. M'Neel, 35 Howard Place
1879 Balfour, Professor I. B., Inverleith House	1887 Cairns, Wm., Dairyman, Fountainbridge
1907 Ballach, Alex., Implement Works, Manderston Street, Leith	
1907 Bathgate, Chas. F., Middleton Home Farm, Gorebridge	
1901 Bathgate, William Thomson, Middleton Lime Works, Gorebridge	





## Admitted

- 1867 ELPHINSTONE, Hon. E. B., Inveresk Lodge, Musselburgh  
 1898 ELPHINSTONE, Lord, Carberry Tower, Musselburgh  
 1890 Farmer, A. Douglas, of Kinkell (New Club, Edinburgh)  
 1875 Fernie, James A., Scottish Conservative Club, Edinburgh  
 1899 Findlay, John R., 27 Drumsheugh Gardens  
 1890 Fisher, Thomas, Whitehill, Rosewell  
 1911 Fleming, Charles, 28 Hillside Crescent  
 1902 Fleming, James, 8 Claremont Terrace  
 1893 Fleming, John, Coates, Penicuik  
 1908 Flowers, Thomas, 8 Albany Street  
 1905 Fogo, J. Row, of Row, 41 Castle Street  
 1865 Foggio, R. G., Western Terrace, Murrayfield  
 1878 Ford, G., Saughton Hall Mains, Gorgie  
 1871 Forgan, Andrew, 10 Claremont Terrace  
 1907 Forrest, James, Feather Hall, Corstorphine  
 1877 Foulis, David, 61 George Street  
 1894 Fowler, David, Glencairn, Bonnyrigg  
 1907 Fraser, R. Atkinson, 1 Forbes Street  
 1899 Fullarton, John, Mid-Kinleith, Currie  
 1861 Fyfe, Robert, 15 Gilmore Place  
 1906 Fyfe, William, 4 Wolseley Place  
 1894 Gardner, Adam, Melville Grange, Gilmerton  
 1877 Gardner, William, East Langton, Mid-Calder  
 1886 Garson, Wm., W.S., 5 Albyn Place  
 1899 Gibson, Sir James P., Bart., M.P., 88 Regent Terrace  
 1896 Gibson, Rev. John, 22 Regent Terrace  
 1889 Gibson, Thos., East Merchiston Villa, 4 Colinton Road  
 1895 Gibson, Thomas R., Bainfield Iron Works, Fountainbridge  
 1907 Gifford, Adam, West Briggs, Kirkliston  
 1901 Gifford, Thomas, West Briggs, Kirkliston  
 1896 Gilbert, T. Johnson, 10 Warriston Crescent  
 1899 Gillespie, Alex. L., 76 Salamander Street, Leith  
 1899 Gillespie, William, jun., 8 Craighall Terrace, Musselburgh  
 1904 Gillon, Andrew, Pentland View, Corstorphine  
 1890 Gilmour, Col. B. Gordon, C.B., D.S.O., of Craigmillar, Edinburgh  
 1874 Glendinning, J. P., Overshields, Mid-Calder  
 1896 Glendinning, George E., 15 Lansdowne Crescent  
 1896 Glendinning, Patrick B., 15 Lansdowne Crescent  
 1908 Gordon, Prof. Arthur, 8 Clyde Street  
 1911 Gordon, John, M.A., B.Sc., 52 North Bridge  
 1898 Graham, David, Northfield, Duddingston, Edinburgh  
 1905 Graham, James, Windiestrawlee Farm, Ferry Road, Edinburgh  
 1904 Graham, John (Mutter, Howie, & Co.), 24 Market Street  
 1905 Graham, Robert, Dalhousie Mains, Dalkeith  
 1910 Grant, Edward John Robertson, Tarn-dune, Colinton Road  
 1861 Gray, James, Braehead Mains, Cramond Bridge  
 1884 Gray, James, Harperigg, Kirknewton  
 1899 Gray, James L., Elginhaugh, Dalkeith  
 1907 Gray, John R., Niddrie Mains, Craigmillar  
 1878 Gray, Robert Smith, Southfield, Duddingston

## Admitted

- 1899 Gray, William, Braehead, Cramond  
 1901 Green, Chas. Edward, The Hollies, Gordon Terrace, Craigmillar Park  
 1877 Greig, R. M., 19 Corenne Gardens  
 1889 Grey, John Edward, M.R.C.V.S., 20 Lauriston Place  
 1907 Guest, Edward Graham, 5 Newbattle Terrace  
 1898 Guild, Alex., Aberlady Mains, Aberlady (6 Rutland Square)  
 1875 Guild, Jas. L., 71 George Street  
 1877 Gulland, W. J., Monkton Hall, Musselburgh  
 1908 Gunn, David W., Craigcrook Farm, Blackhall  
 1907 Haining, George, Malcolmstone, Currie  
 1899 Haldane, Francis G., W.S., 4 North Charlotte Street  
 1899 Haldane, R. Stuart, 2 Seaview Terrace, Joppa, Portobello  
 1907 Hamilton, David Rae, Catcounie Mills, Gorebridge  
 1908 Hamilton, George, Newyearfield Farm, Mid-Calder  
 1905 Hamilton, James, Old Liston, Ratho  
 1908 Hamilton, John, Bloom Farm, Mid-Calder  
 1906 Hamilton, William H., of Cairns, Kirknewton  
 1905 Harding-Edgar, George (of Linplum, Haddington), 9 George IV. Bridge  
 1871 Harper, William, Sheriffhall Mains, Dalkeith  
 1908 Hay, Dr Henry, 11 Great King Street  
 1898 Henderson, Allan M., 66 Frederick Street  
 1876 Henderson, John, C.A., 40 Leamington Terrace  
 1899 Henderson, Robert, Craigie, Cramond Bridge  
 1902 Herdman, John, 46 Constitution Street, Leith  
 1899 Herdman, Thomas A., Southside, Gorebridge  
 1868 Higgins, Robert, 18 Garscube Terrace, Murrayfield  
 1903 Hill, Ernest G., c/o Macandrew, Murray, & Wright, W.S., 9 Albyn Place  
 1876 Hogg, Robert, 49 Falcon Avenue  
 1907 Hogg, Robt. N., Turnhouse, Cramond Bridge  
 1880 Hogg, Thomas, Oxenford Mains, Dalkeith  
 1898 Hogg, William, jun., 6 Wardie Crescent  
 1886 Honeyman, Thomas, Levenhall House, Musselburgh  
 1907 Hood, James A., Midfield, Lasswade  
 1878 Hope, Sir Alexander, of Pinkie, Bart., Pinkie House, Musselburgh  
 1877 Hope, James Edward, New Club  
 1905 Howat, James, Harrysmuir, Midcalder  
 1907 Howden, John M., C.A., 8 York Place  
 1906 Hunter, David, Monkton Lodge, 62 St Alban's Road  
 1908 Hunter, Frank, W.S., 7 York Place  
 1908 Hunter, John, The Bow, Stow  
 1877 Hunter, J. jun., Woodhall Mains, Juniper Green  
 1894 Hunter, John, 87 Chambers Street  
 1900 Hunter, William, West Catherine Place  
 1904 Hunter, Wm. C., W.S., 15 Hill Street  
 1875 Hutchison, Thomas, Broomhills, Loanhead  
 1877 Inch, Robert, 1 Victoria Street  
 1869 Inglis, A. W., 30 Abercromby Place  
 1902 Inglis, William, Bonnington Mills, Leith  
 1907 Ireland, Alex. S., S.S.C., 2 Buckingham Terrace  
 1899 Irons, Jas. Hay (Orrell & Sons, Ltd.), Castle Terrace

## Admitted

- 1898 Irons, George Campbell, 19 Dundas Street  
 1903 Jack, Alex., Brunstane Mills, Musselburgh  
 1907 Jack, Arch. G., Orlinton Mains, Ford, Dalkeith  
 1872 Jack, Gavin, Swanston, Lothianburn  
 1902 Jack, Guy, Hermiston Farm, Hermiston  
 1905 Jack, J. Douglas, North Gyle, Corstorphine  
 1860 Jack, Samuel, Orlinton Mains, Dalkeith  
 1907 Jackson, Richard F., Cathpair, Stow  
 1858 Jamieson, Wm. H., 4 Danube Street  
 1872 Johnson, W. H., Tweed Villa, Relugas Road  
 1894 Johnston, Hon. Lord, 38 Moray Place  
 1906 Johnstone, James, 8 Granton Square, Edinburgh  
 1862 Jones, Charles Digby, 12 Chester Street  
 1901 Keay, Dr John, Lunatic Asylum, Bangour, Uphall  
 1906 Keegan, Chas. B., St Clement's Wells, Musselburgh  
 1878 Kennedy, Capt. J. B., 34 Murrayfield Road  
 1888 Kerr, George, 6 St Colins Street  
 1902 Kidd, Alex., Nether Lennie, Cramond Bridge  
 1871 King, J. F., Chambers Street  
 1889 Kinnloch, Charles, Sodbury, Cramond Bridge  
 1903 Kinnear, Norman Boyd, 12 Grosvenor Crescent  
 1897 Kirk, W. J., 40 Palmerston Place  
 1896 Kirkwood, W. H., Lothian Bridge, Dalkeith  
 1899 Knoblauch, Hugo, 22 Baltic Street, Leith  
 1902 Knoblauch, Louis, 74 Inverleith Place  
 1893 Laird, Robert, 17 Frederick Street  
 1895 Lamont, James, 41 Comely Bank Road  
 1905 Lauder, Alex., D.Sc., F.C.S., 18 George Square  
 1899 Lauder, Alex., Goshen, Musselburgh  
 1907 Lawrie, James, Loanhead Farm, Ford, Dalkeith  
 1902 Lawrie, John, Wester Hailes, Juniper Green  
 1872 Lawrie, John W., Beechwood, Dewarton, Gorebridge  
 1872 Lawrie, Thos., Esperston, Gorebridge  
 1899 Lawrie, Thomas, Drylaw, Davidson's Mains  
 1868 Lees, Richard, 9 Braidburn Terrace  
 1907 Lagget, R. Lindsay, 2 Ravelstone Terrace  
 1865 Lewis, John, Fairfield, Corstorphine  
 1878 Lindsay, Hugh, Barnet Bank, Lasswade  
 1884 Lindsay, Robert, Kaim's Lodge, Murrayfield  
 1906 Lindsay, R., Sanitary Inspector, County Building  
 1907 Linklater, John, 79 St Stephen Street  
 1908 Lister, Alex., St John's Road, Corstorphine  
 1898 Logan, Robt. John, 28 Melville Street  
 1899 Logan, William, Easter Kinnleith, Currie  
 1873 Loney, Peter, 6 Carlton Street—*Fraser's Member*, 1893  
 1898 LOTHIAN, Marquis of, Newbattle Abbey, Dalkeith  
 1898 Loudon, John, Muldron, Fauldhouse  
 1902 Love, David, Dean Park, Balerno  
 1891 Lowe, W. D., W.S., 66 Queen Street  
 1902 Lowrie, John, 57 Harrison Road  
 1910 McCallum, Alex., M.A., LL.B., 18 George Square  
 1874 McCallum, A. L., 30 King's Stables Road  
 1882 McEwan, Alex., 5 Barton Gardens, Davidson's Mains  
 1908 McCrosbie, Hugh, 144 Newhaven Road, Leith

## Admitted

- 1883 Macdonald, James, 3 George IV. Bridge  
 —*Secretary of the Society*  
 1899 M'Dougall, And., Willow Bank, Corstorphine  
 1911 MacDougall, R. Stewart, D.Sc., F.R.S.E., 9 Dryden Place  
 1878 M'Dowall, T. N., Remote, Dalkeith  
 1865 Macfie, D. J., of Borthwick Hall, Heriot  
 1890 MacGibbon, John, Ardgowan, Levenhall, Musselburgh  
 1877 M'Gowan, Robert, 8 Succoth Gardens  
 1870 M'Gowan, William, 8 Succoth Gardens  
 1909 M'Ilwrick, T., 24 Downie Terrace, Murrayfield  
 1892 M'Kechnie, Dugald, 60 Northumberland Street  
 1900 M'Kelvie, James, Hatton House, Kirknewton  
 1907 Mackenzie, Alexander, 19 Greenhill Gardens  
 1879 Mackenzie, A. D. (Mackenzie & Monour, Ltd.), 14 Greenhill Park  
 1870 Mackenzie, John, W.S., 16 Royal Circus  
 1897 Mackenzie, Stewart, 24 Shandon Street  
 1910 Mackenzie, William Lyon, 6 Melville Crescent  
 1882 M'Kerrall, R. M., 11 Rutland Square  
 1899 Mackinlay, Jas., 87 Constitution Street, Leith  
 1905 Mackintosh, Angus, 122 George Street  
 1878 MacLagan, R. C. M.D., 5 Coates Crescent  
 1910 M'Laren, Peter R., architect and surveyor, 84 St Andrew Square  
 1897 M'Lean, Allan T. L., Duart Lodge, 73 Colinton Road  
 1902 M'Lennan, George M., 14 Oluny Terrace  
 1894 M'Leod, A. G., 48 Castle Street  
 1899 M'Nee, Peter, 92 Grassmarket  
 1888 Macpherson, C. E. W., C.A., 6 North St David Street  
 1879 MacRitchie, David, 4 Archibald Place  
 1891 M'Vean, Colin A., 8 Abbotsford Park  
 1893 Maddar, J. W., 20 Brunstane Road, Joppa  
 1896 Main, James, Corn Exchange Buildings  
 1908 Marshall, William, Humble Farm, Kirknewton  
 1908 Martin, John, Letham, Mid-Caldor  
 1867 Martin, John M., Crauford, Lasswade  
 1886 Massie, W. H., 1 Waterloo Place  
 1907 Mather, James, 10 Barton Gardens, Davidson's Mains  
 1899 Mather, Matthew, Silverknowes, Davidson's Mains  
 1907 Mather, Matthew, jun., Silverknowes, Davidson's Mains  
 1900 Mathison, William, of Sheestanes, Heriot  
 1899 Maxwell, David, 132a George Street  
 1886 Melville, G. F., 19 Moray Place  
 1899 Melvin, Alex., 4 Saville Terrace  
 1907 Menzies, Alan L., Larch Grove, Balerno  
 1899 Mercer, George G., Southfield, Dalkeith  
 1870 Merricks, H. J., The Retreat, Blackshields  
 1892 Methuen, John, 21 Rutland Street  
 1884 Methven, John, 6 Bellevue Crescent  
 1911 Millar, Alex., 18 Rothery Place  
 1902 Millar, James, Pumping Station, Mid-Caldor  
 1910 Millar, James, Pumping Station, Mid-Caldor  
 1904 Millar, J. A. S., W.S., 24 St Andrew Street  
 1905 Millar, J. W., Levenhall, Musselburgh  
 1897 Millar, Thomas, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

## Admitted

- 1869 Mitchell, Wm., S.S.C., 11 South Charlotte Street  
 1885 MONROE, Hon. Jas. W., 6 Ainslie Place  
 1907 Moncur, James L., Oreti, 16 Greenhill Terrace  
 1908 Monteith, Bryden, Tower Mains, Liberton  
 1907 Morgan, Samuel, Golfhall, Corstorphine  
 1907 Morgan, Wm. M., Woodville, Laverockbank Road, Trinity  
 1908 Morrison, James, 18 George Street  
 1904 Morrison, John H., Elvarbank, Milton Road, Joppa  
 1886 Morton, The Earl of, Dalmahoy, Wilkieston  
 1899 Muir, John, Freeland, Ratho  
 1899 Muir, William, Newhouse, Kirknewton  
 1883 Muirhead, George, 87 Palmerston Place  
 1897 Muirhead, James, South Melville, Lasswade  
 1887 Mungle, John T., West Calder  
 1905 Munro, Alex. J., 48 Castle Street  
 1891 Munro, Duncan, 8 Dalrymple Place—*Free Life Member*  
 1870 Mure, W. J., New Club, Princes Street  
 1904 Murray, Jas. W., Outerston, Gorebridge  
 1898 Murray, James, 6 Templeland Road, Corstorphine  
 1875 Murray, R. W. E., Blackford House, Blackford Avenue—*Free Life Member*  
 1890 Murray, T. M., W.S., 9 Buckingham Terrace  
 1885 Murray, Wm. Hugh, W.S., 48 Castle Street  
 1909 Mylne, James, C.A., 42 Castle Street  
 1900 Mylne, James, W.S., 36 Castle Street  
 1905 Nagel, Franz J., 1a George IV. Bridge  
 1888 Naismith, R. T., 2 Ethel Terrace, Plewlands  
 1899 Nasmyth, Dr Thomas Goodall, 27 Palmerston Place  
 1906 Neil, Andrew, Thorneycrook, Dalkeith  
 1902 Nelson, Thos. Arthur (of Achnacloch), St Leonard's, Edinburgh  
 1896 Nicholson, W. D., 8 Hartington Gardens  
 1909 Nisbet, Gavin, Lawfield, Dalkeith  
 1880 Niven, A. T. C.A., 16 Young Street  
 1883 Oliver, James, 11 Claremont Terrace  
 1880 Oliver, John, 1 Glengyle Terrace  
 1900 Panton, John, H.M. Prison, Waterloo Place  
 1906 Park, Robert, Brunstane, Portobello  
 1899 Pate, Thomas, Windydoors, Stow  
 1873 Paterson, James, of Bankton, Mid-Calder  
 1876 Paterson, J. T. S., Coltbridge House, Edinburgh  
 1899 Paterson, Thomas, W.S., 18 Douglas Crescent  
 1890 Patten, Hugh, W.S., 42 Castle Street  
 1880 Paul, Geo. M., C.S., 16 St Andrew Square  
 1901 Pearson, Andrew, Dalkeith Park, Dalkeith  
 1899 Pearson, Dalsiel, W.S., 27 Royal Terrace  
 1898 Pender, James, 8 Bright's Crescent  
 1878 Pendreigh, George, Upper Dalhousie, Bonnyrigg  
 1893 Pitman, A. R. C., W.S., 48 Castle Street  
 1907 Player, Jas. F., M.R.C.V.S., Tollcross  
 1906 Plenderleith, William, Rosewell Mains, Rosewell  
 1894 Poole, William, Corn Exchange Buildings  
 1865 Prentice, R. R., 6 Mayfield Terrace  
 1899 Pretsell, James, Pentland Mains, Loanhead  
 1876 Pringle, J., 9 Rothesay Terrace  
 1899 Pringle, James, Orclinton House, Pathhead, Ford

## Admitted

- 1910 Pringle, Thomas, jun., Temple Farm, Gorebridge  
 1907 Ralph, Wm., I.S.O., Lismacree, Corstorphine  
 1902 Ralston, Gavin W., Advocate, 6 Abercromby Place  
 1881 Ramsay, R. G. Wardlaw, of Whitehill, Rosewell  
 1890 Ramsay, William, of Bowland, Stow  
 1874 Rankine, Prof. John, 23 Ainslie Place  
 1887 Readman, J. B., 4 Lindsay Place  
 1893 Reid, James, W.S., Drem, East Lothian (2 Thistle Court)  
 1888 Renwick, Andrew, Byres, Longniddry  
 1879 Renwick, Wm., Meadowfield, Corstorphine  
 1907 Richardson, Henry E. (of Broadshaw, West Calder), 31 Melville Street  
 1877 Riddell, A., 5 Grassmarket  
 1899 RIDDILL, Sir A. Oliver, Craiglockhart House, Slateford  
 1898 Ritchie, C., 81 Argyll Crescent, Portobello  
 1869 Ritchie, Charles, S.S.C., 20 Hill Street  
 1893 Ritchie, J. B., 12 St Catherine's Place  
 1907 Robbie, Arch., Castlepark, Corstorphine  
 1876 Robertson, Lieut.-Col. James C., United Service Club, Shandwick Place  
 1909 Robertson, James F., C.A., 40 Balgreen Avenue, Murrayfield  
 1904 Robertson, John, W.S., 66 Queen Street  
 1907 Robertson, Wm. F., W.S., 18 South Castle Street  
 1878 Rodgie, Henry, 7 London Street  
 1872 Ross, George, 69 Leamington Terrace  
 1907 Ross, James Paul, M.A., W.S., 183A George Street  
 1907 Ross, Wm., 4 St Peter's Place  
 1899 Roughton, A. J., 21 Lansdowne Crescent  
 1899 Russell, A. M., 29 Grassmarket  
 1898 RUSSELL, Sir James Alex., Woodville, Canaan Lane  
 1872 Rutherford, A., Lilrig, Belgrave Road, Corstorphine  
 1887 Rutherford, Richard, V.S., Bread Street  
 1907 Sanderson, George F., Home Farm, Dalkeith Park, Dalkeith  
 1892 Sanford, Major Charles Henry, Beeslack, Milton Bridge  
 1902 Scarlett, Jas. W., Sweetthope, Inveresk  
 1888 Scott, Geo. R., Oxengange, Colinton  
 1904 Scott, John, 188 Comiston Road  
 1910 Scott, Robert Greig, W.S., 6 Hill Street  
 1901 Scott, William, jun., Newbridge, Ratho  
 1898 Seath, Alex., 9 Spottlawood Road  
 1905 Semple, Andrew, Rosebank, Mid-Calder  
 1899 Shaw, David, W.S., 1 Thistle Court  
 1896 Shaw, James, 18 Roseneath Terrace  
 1899 Shields, Geo. Bertram, Wallyford, Musselburgh  
 1889 Shiells, James, Muirhouse, Stow  
 1901 Simpson, John, Halfakill, Tynehead  
 1898 Simpson, Mark F., Duddingston Farm, Portobello  
 1874 Simson, C. S., 42 Charlotte Square  
 1907 Smith, Alex., Kirkcaldy, Roslin Castle Station  
 1881 Smith, A. D. C.A., 4 York Place  
 1899 Smith, Geo. Gardiner, Georgeville, Mid-Calder  
 1895 Smith, Harry W., W.S., 28 Nelson Street  
 1899 Smith, Henry, W.S., 5 South Charlotte Street  
 1908 Smith, J. Aikman, C.A., 11 Duke Street  
 1907 Smith, J. Hood, 10 New Broughton  
 1877 Smith, Robt., 8 Rochester Terrace

- Admitted  
 1901 Smith, Robert, Cranston Riddell, Dalkeith  
 1896 Smith, Stephen, 47 George Street  
 1884 Smith, Thomas H., National Bank, Edinburgh  
 1884 Smith, William, 7 Grassmarket  
 1899 Smith, Wm., West Hartwood, West Calder  
 1910 Smith, Wm. Gardner, 13 George Square  
 1899 Snodgrass, Jas., Bryans, Dalkeith  
 1899 Snodgrass, Matthew W., Langside, Dalkeith  
 1899 Snodgrass, Peter L., Hopefield, Bonnyrigg  
 1906 Somerville, John White, Carcant, Heriot  
 1906 Sommerville, Robert, Wester Cowden, Dalkeith  
 1893 Somner, George (Peter Lawson & Son, Limited), 1 George IV. Bridge  
 1909 Stanfield, Prof. Richard, Heriot-Watt College, Chambers Street—*Consulting Engineer to the Society*  
 1893 Stark, James, 26 Earl Grey Street  
 1895 Stedman, James, jun., Middletown, Fountainhall, Mid-Lothian  
 1861 Stenhouse, Jas., Turnhouse, Cramond Bridge  
 1899 Stenhouse, John Robert, South Gyle, Corstorphine  
 1903 Stenhouse, Wm., Springfield Mills, Leith Walk  
 1884 Steuart, J. H., Belstane, Kirknewton  
 1886 Stevenson, David Alan, C.E., 84 George Street  
 1881 Stewart, G. M. F., 125 George Street  
 1909 Stewart, James B., Netherby, Eskbank  
 1911 Stewart, John, Newton Farm, Millerhill  
 1900 Stewart, M. Muir, 11 Eglinton Crescent  
 1901 Stewart, R. T., Seaforth, Levenhall, Musselburgh  
 1899 Stewart, W. M., 5 Inverleith Terrace  
 1878 Stodart, J. A., Broomvale, Broomieknowe, Lasswade  
 1890 Stoddart, James Edward, of Howden, Mid-Calder  
 1878 Strathern, Robt., W.S., 12 South Charlotte Street  
 1906 Stungo, S. S., 47 Cockburn Street  
 1865 Sutherland, Jas. B., S.S.C., 10 Royal Terrace  
 1888 Swan, James, Haymarket  
 1894 Tait, R. M., c/o Mrs Harie, East Craigie, Cramond Bridge  
 1908 Tait, Wm. Ferrier, Galaide, Heriot  
 1902 Taylor, James, Lochend Farm, Abbeyhill  
 1898 Taylor, James (Easter Drylaw), Edinburgh  
 1884 Taylor, Peter, Lochend  
 1899 Taylor, Thomas W., Seed Merchant, Dalkeith  
 1884 Thin, John, Ferniehurst, Stow  
 1858 Thomson, James, 58 George Street  
 1895 Thomson, James, jr. of Glenpark, Balerno  
 1878 Thomson, Sir Mitchell., of Polmoed, Bart., 6 Charlotte Square  
 1888 Thomson, Robert, Rusha, West Calder  
 1899 Thomson, R. J., 2 Wilton Road  
 1875 Thomson, Thos., 4 Wardie Avenue  
 1900 Thomson, W. W., 21 Chester Street  
 1903 Tillie, David, Broxburn, Broxburn  
 1902 Tillie, John, Haddington, Haddington  
 1902 Tillie, Thos. G., Greenbank, Cameron Park  
 1900 Todd, A. Enever, Stoneybank, Musselburgh  
 1877 Torrance, T. A., Annfield, Lasswade
- Admitted  
 1894 Torrance, T. A., Ashbank Poultry Yards, Gorebridge  
 1899 Trotter, Alex. E. C., Bush, Milton Bridge  
 1898 Trotter, John, c/o M Taggart, 5 Argyle Park Terrace—*Free Life Member*  
 1908 Tudhope, James, Lawhead, Panicleuk  
 1878 Tuke, Dr Sir J. B., M.P., Balgreen, Gorgie, Edinburgh  
 1909 Tullo, George (George Thornton & Co.), 4 Hanover Street  
 1899 Turnbull, Phipps O., Smeaton, Dalkeith  
 1868 Turner, Principal Sir W., 6 Eton Terrace  
 1901 Urmston, Charles Hanson, W.S., 19 Merchiston Place  
 1896 Usher, Frank James, Norton, Ratho Station  
 1900 Usher, Sir Robert, of Norton, Bart., 37 Drumshaugh Gardens  
 1903 Usher, Thomas Leslie, 8 Whitehouse Terrace  
 1874 Waddell, A. Peddie, 6 Albany Place  
 1888 Waddell, George, 21 St Andrew Square  
 1902 Waddell, Wm., 14 Gilmore Place  
 1902 Waddell, Wm., jun., 14 Gilmore Place  
 1857 Wakelin, John, Oil Mills, Musselburgh  
 1899 Wakelin, J., Agricultural Hall, Valleyfield Street  
 1899 Waldie, D., 26 Douglas Crescent  
 1899 Waldie, J. Paterson, Haymarket, Edinburgh  
 1902 Walker, Alex., Cairntown, Liberton  
 1910 Walker, And., Ardbeg, Kames Road, Murrayfield  
 1895 Walker, Graham W., c/o Colquhoun, 9 Merchiston Crescent  
 1899 Walker, John, 28 Lismore Crescent  
 1883 Walker, R. H., of Hartwood, West Calder  
 1902 Wallace, Richard, Dreghorn Mains, Colinton  
 1878 Wallace, Prof. Robert, University, Edinburgh—*Free Life Member*  
 1880 Wallace, Thomas A., 12 Abinger Gardens, Murrayfield  
 1900 Warden, John S., East Giebe, Dalkeith  
 1908 Watherston, Robert H., 29 Queensferry Street  
 1898 Watson, Gilbert, 2 Chamberlain Road  
 1882 Watson, G. G., W.S., 4 Glenfinlas Street  
 1878 Watson, James Graham, Kingston Grange, Liberton  
 1884 Watson, John, Kingsbeck, Cluny Drive  
 1882 Watson, Sir J. D. D., of Edmonstone, Bart., 18 Ainslie Place  
 1910 Wedderburn, Ernest Macdagan, W.S., 2 Glenfinlas Street  
 1908 Welsh, Robert, Liberton Mains, Liberton  
 1877 Welwood, J. A. Macconochie, Meadowbank House, Kirknewton  
 1889 Wemyss, A. W., 8 Arboretum Road  
 1873 White, Robert, 35 Scotland Street  
 1901 White, Robert S., Halkerton, Gorgie bridge  
 1898 White, Samuel, Lugate, Stow  
 1899 White, William, Gorgie, Edinburgh  
 1902 Wight, A. D., West Gorgie, Musselburgh  
 1898 Wight, George, 2000 Road  
 1905 Wight, John, 2000 Road  
 1884 Wight, Robert, 2000 Road  
 1896 Wight, Robert, 2000 Road  
 1878 Wight, Robert, 2000 Road  
 1899 Wight, Robert, 2000 Road  
 1899 Wight, Robert, 2000 Road

## Admitted

- 1832† Wilson, John, 6 Mansionhouse Road  
 1911 Wilson, R. M., B.Sc., 13 George Square  
 1897 Wishart, D. F. (J. Bisset & Sons, Ltd., Blairgowrie), 13 Picardy Place  
 1902 Wood, James, 1 Seton Place  
 1890 Wyllie, James, Royal Bank, Leith  
 1905 Wyllie, James, The Craigs, Mid-Calder  
 1884 Wyllie, Alex., 68 Great King Street  
 1902 Young, James, East Craigs, Corstorphine  
 1896 Young, John, Stralton, Loanhead  
 1907 Young, John H. J., 200 Morrison Street  
 1898 Young, Robert, 8 Abbotsford Park  
 1906 Young, Wm. Jackson, M.R.C.V.S., 89 Leamington Terrace  
 1870 Younger, Henry J., Abbey Brewery  
 1899 Younger, H., yr. of Benmore, Abbey Brewery  
 1899 Younger, J. A. G., Abbey Brewery  
 1899 Younger, Wm. J., 21 Douglas Crescent

## HADDINGTON.

- 1859 Anderson, G. B., Meikle Pinkerton, Dunbar  
 1873 Anderson, W. W., of Kingston, North Berwick  
 1892 Baillie, Wm., Nurseries, Haddington—  
*Free Life Member*  
 1860 Baird, Sir David, of Newbyth, Bart., Prestonkirk  
 1868† BALFOUR, Right Hon. A. J., of Whittingehame, M.P., Prestonkirk  
 1883 Bayley, Isaac F., Halls, Dunbar  
 1898 Bertram, Andrew, Townhead, Gifford  
 1907 Binnie, Thos., Seton Mains, Longniddry  
 1898 Binnie, Wm. A. G., Birnieknowes, Cockburnspath  
 1902 Black, George, Penston, Macmerry  
 1892 Blair, Thomas, Hoprig Mains, Gladsmuir  
 1902 Blyth, Andrew, Tynninghame, Prestonkirk  
 1907 BOWE, Thomas, East Fenton, Drem  
 1906 Bowe, W. C., Thorntonloch, Innerwick  
 1880 Bridges, A. S., Engineer, Haddington  
 1902 Brooks, Andrew, North Elphinstone, Tranent  
 1899 Brown, Malcolm, Ugston, Haddington  
 1898 Brown, Wm., Templehall, Ormiston  
 1900 Buchan, Wm., Biel Grange, Prestonkirk  
 1899 Buist, Robert, Lander Place, East Linton  
 1899 Cairns, John, Wroughton, Prestonkirk  
 1884 Calder, Robt., Cairndinnies, Haddington  
 1908 Clark, George D., Luggate, Prestonkirk  
 1884 Clark, James, Kirklandhill, Prestonkirk  
 1898 Clark, John, Saltcoats, Gullane  
 1880 Clark, Thomas, Oldhamstocks Mains, Cockburnspath  
 1907 Clark, William, Craigielaw Cottage, Longniddry  
 1896 Cockburn, David, Foulden Hill, Berwick-on-Tweed  
 1899 Connor, G. A., Craigielaw, Longniddry  
 1886 Courtney, Wm., Portobello Farm, Tranent  
 1895 Carr, William Simpson, Ninewar, Prestonkirk  
 1911 Dale, John Robert, Scoughall, North Berwick  
 1905 Davie, William, Seedsman, Haddington  
 1896 Deans, John H., Pitcox, Dunbar  
 1877 Donald, Andrew, Queenston Bank, Dirlston  
 1884 ELCHO, Lord, Gosford, Longniddry  
 1890 Elder, James, Haddington  
 1890 Elder, Thomas, Stevenson Mains, Haddington

## Admitted

- 1884 Elliot, Walter, Bowmont, Dunbar  
 1906 Elliot, Wm. Pringle, Duncrahill, Penciland  
 1907 Ellis, Wm., Murrays, Ormiston  
 1907 Ferrie, John, Riggonhead, Tranent  
 1907 Fortune, Andrew, Stoneypath Tower, Prestonkirk  
 1907 Fortune, Jam., Seggarsdean, Haddington  
 1899 Fraser, John H., East Pinkerton, Dunbar  
 1877 Fyshe, Peter, Newtonlees, Dunbar  
 1902 Gardner, Daniel, Stonelaws, Prestonkirk  
 1904 Gemmill, William, Greendykes, Macmerry  
 1899 Gibson, Walter H., Camptoun, Drem  
 1882 Gray, W. W., of Nunraw, Prestonkirk  
 1898 Gregor, Charles E., Innerwick, East Lothian  
 1857\*† HADDINGTON, The Earl of, Tynninghame, Prestonkirk  
 1872 Handyside, J. B., Fenton, Drem  
 1899 Hartley, G. W., Moresby, North Berwick  
 1862 Hay, Captain J. G. Baird, of Belton, Dunbar  
 1885 Henderson, George, Upper Keith  
 1894 Henderson, James, South Elphinstone, Tranent  
 1898 HESBURN, Sir Archibald Buchan, of Smeaton, Bart., Prestonkirk  
 1907 Hogg, George, Newlands, Gifford  
 1908 Hope, George Everard, yr. of Luffness, Aberlady  
 1886 Hope, Harry, M.P., Barneyhill, Dunbar  
 1866 Hope, Henry W., of Luffness, Drem  
 1847 Hope, James, East Barns, Dunbar  
 1907 Hope, Thos. C., Knows, Prestonkirk  
 1878 Hope, William James, East Barns, Dunbar  
 1907 Hope, Wm. W., Knows, Prestonkirk  
 1898 Horn, Wm., of Woodcote Park, Blackshiels  
 1877 Houston, M. H., of Beechhill, Haddington  
 1907 Inch, Adam, Lempock Wells, Penciland  
 1899 Jeffrey, James, Deuchrie, Prestonkirk  
 1884 Kerr, John, Barney mains, Haddington  
 1859 KINLOCH, Sir Alex., of Gilmerton, Bart., Drem  
 1885 Kinloch, Colonel David A., yr. of Gilmerton, Drem  
 1898 Kinnaird, Andrew, The Grange, Garvald, Prestonkirk  
 1908 Kinnaird, John, jun., New Mains, Stenton, Prestonkirk  
 1898 Lee, Joseph, of Congalton, North Berwick  
 1868 Lesslie, James, Beanston, Haddington  
 1905 Logan, David, Saltoun Hall, Penciland  
 1907 Macdonald, Sydney, Northrig, Haddington  
 1899 M'Kelvie, William, Duncanlaw, Gifford  
 1908 Mackie, Alex. Kirk, West Fortune, Drem  
 1907 Mackie, George, Kingslaw, Tranent  
 1910 M'Nicol, William, Castleton, North Berwick  
 1877 Mark, John, Sunnyside, Prestonkirk  
 1890 Mason, William, Amisfield Mains, Haddington  
 1899 Matthewson, Adam, Leehouses, Haddington  
 1900 Maxwell, R. N., Craigielaw Farm, Aberlady  
 1910 Mitchell, James, Wamphray, North Berwick  
 1910 Moffat, George, Williamston, North Berwick

## Admitted

- 1870 Murray, David, Quarryford, Gifford  
 1907 Murray, W., Solicitor, Haddington  
 1871 Nelson, Charles, Skateraw, Innerwick  
 1890 Nisbet, C. C., of Stobbsiel, Upper Keith  
 1899 Pace, Ferrier, Ormiston Mains, Ormiston  
 1900 Park, John, Setonhill, Longniddry  
 1904 Park, Matthew, Hoprig, Macmerry  
 1907 Park, Thos. B., Haddington  
 1899 Parr, John, Abbey Mains, Haddington  
 1899 Paterson, Thomas L., Nisbet, Pencaitland  
 1905 Peters, J. S., British Malt Products Co., Dunbar  
 1865 Puntun, F. H., The Lodge, Aberlady  
 1894 Reid, James, Tyneholm, Pencaitland  
 1898 Riddell, David, West Peaston, Ormiston  
 1898 Riddell, George, Mungoswells, Drem  
 1880 Riddell, John, West Peaston, Ormiston  
 1907 Riddell, John, jun., West Peaston, Ormiston  
 1892 Riddell, Wm., Cocklaw, Oldhamstocks  
 1894 Robertson, John, Beanton Mains, Haddington  
 1909 Robertson, Thomas Sheriff (Thomas Sheriff & Co.), West Barns, Dunbar  
 1874 Robson, John, Millknowe Cranshaws, Duns (Newton, Bellingham)  
 1895 Ronaldson, George, Kiduff Mains, Drem  
 1907 Ross, T. F., Muirfield, Gullane  
 1899 Russell, Charles, West Mains, Haddington  
 1907 Russell, David, Redmains, Pencaitland  
 1902 Russell, Thomas, Windygoul, Tranent  
 1878 Sharp, John J., Ewingston, Gifford—*Free Life Member*  
 1908 Shirreff, Charles R., Southfield, Longniddry  
 1877 Shields, James, Longniddry  
 1899 Shiels, Thomas J., Carfrae, Prestonkirk  
 1887 Simpson, James, Castlemaids, Ormiston  
 1907 Sligh, David, North Mains, Ormiston  
 1868 Smith, Andrew, Markle, Prestonkirk  
 1876 Smith, D. W. E., Caponflat, Haddington  
 1882 Smith, E. Hadley, B.L., Whittinghame, Prestonkirk—*Free Life Member*  
 1891 Spence, A. G., Long Yeater, Gifford  
 1899 Stenhouse, James, Home Farm, Spott, Dunbar  
 1894 Steven, John, Begbie, Haddington  
 1907 Stewart, James, Pressmennan, Prestonkirk  
 1898 Stewart, John, Saughland, Tynehead  
 1907 Stewart, John M., Stoneypath, Prestonkirk  
 1905 Stodart, Hugh, Wintonhill, Pencaitland  
 1887 Stodart, John, Adinston, Macmerry  
 1862 Swinton, F. Burn, Hollyn Bank, Gifford  
 1907 Tait, John, Nether Halls, Haddington  
 1899 Thomson, Jas., Butcher, Haddington  
 1907 Thomson, John, Wheatrigg Farm, Longniddry  
 1907 Turnbull, Mark J., Tynemount, Ormiston  
 1859 Turnbull, P., Little Pinkerton, Dunbar  
 1879 Tweeddale, The Marquis of, K.T., Yeater, Haddington  
 1907 Tweadie, Robt. W., Coats, Longniddry  
 1899 Wallace, Forbes, Redeoll, Longniddry  
 1881 Wallace, John, Halls, Haddington  
 1907 Watson, Robert S., Samueldston, Haddington  
 1888 Watt, Miss Adelaide, of Spott, Dunbar  
 1902 Watt, David, Cassideroch, Preston  
 1899 Watt, James Wm., New Barns, Drem  
 1898 Weddell, John, Gifford  
 1847 Wemyss and Marischal, The Earl of, Gosford, Longniddry  
 1895 Wilson, David, Agricultural Engineer, East Linton

## Admitted

- 1888 Wilson, Peter, Rhodes, North Berwick  
 1890 Wilson, Robert, Sheriffside, Gifford  
 1910 Wright, William, Preston, Prestonpans  
 1898 Wylie, Robert, Heugh, North Berwick  
 1907 Wylie, John, Castlemaids, Gifford  
 1899 Wylie, Wm. R., Tranent Mains, Tranent  
 1877 Young, D. S., Bonnington, North Berwick  
 1887 Young, James B., Elphinstone Tower, Tranent  
 1869 Yule, Edward, Balgone, North Berwick

## LINLITHGOW.

- 1910 Addison, James, Kinneil Mill, Linlithgow  
 1910 Addison, William, Kinneil Mill, Linlithgow  
 1899 Alexander, Thomas, Nethermuir, Bathgate  
 1898 Allan, Robert, Halfway House, Whitburn—*Free Life Member*  
 1895 Allison, David, Duddingston, South Queensferry  
 1906 Allison, James, Carlowrie, Kirkliston  
 1910 Anderson, Duncan, butcher, High Street, Linlithgow  
 1906 Arkley, Robt., Kingsfield, Linlithgow  
 1908 Armour, Harry, Niddry Mains, Winchburgh  
 1888 Bartholomew, John, Duntarvie, Winchburgh  
 1906 Bartie, Thomas, Dundas Castle, South Queensferry  
 1899 Borthwick, James, V.S., Kirkliston  
 1907 Bowie, Andrew, Grougfoot, Linlithgow  
 1907 Bowie, William, Parkhead, Linlithgow  
 1907 Braes, William, M.R.C.V.S., Fleetwood, Linlithgow  
 1902 Brash, James, Hallyards, Kirkliston  
 1906 Brock, Sydney, Overton, Kirkliston  
 1909 Brown, William, Balderston Farm, Linlithgow  
 1875 Brownlee, James, East Whitburn Farm  
 1887 Burton, J. Tait, Scotstoun, South Queensferry  
 1895 Cadell, Henry M., of Grange, Linlithgow  
 1900 Cadzow, James, Kilpult, Broxburn  
 1899 Cesar, William, Solicitor, Bathgate  
 1904 Cochran, Arch., Trinlaymre, Linlithgow  
 1882 Crawford, Alex., Bo'mains, Boness  
 1907 Crawford, James, Conisland, Bathgate  
 1899 Daisiel, Alex., Stonyburn, Fauldhouse  
 1869 Dudgeon, George, Almondhill, Kirkliston  
 1887 Dudgeon, Jn. G., Easter Dalmeny, Dalmeny  
 1889 Ferrier, Wm. C., Birkenshaw, Bathgate  
 1905 Fraser, Thos., Millrig Farm, Kirkliston  
 1905 Frew, John, Sanitary Inspector, Bathgate  
 1906 Galbraith, Alex., Upper Kinross, Linlithgow  
 1909 Glen, Snock, Glenavon, Linlithgow  
 1889 Glendinning, Alex., New  
 1902 Graham, George, W  
 1910 Grant, George  
 1898 Greig, James  
 1895 Hamilton  
 1887 Hume  
 1911  
 1891  
 1891

## Admitted

- 1906 Howat, James, Burghmuir, Linlithgow  
 1908 Jackson, James, Kinneil Kerse, Bo'ness  
 1908 Lawson, James, Three Mile Town, Linlithgow  
 1911 Longwell, David, Muir House, Linlithgow  
 1908 M'Andrew, Rev. T. W., The Manse, Fauldhouse  
 1889 Macaulay, Jas. F., Kinneil Estate Office, Bo'ness  
 1908 M'Knight, George Simpson, Linlithgow  
 1885 M'Laren, J. T., The Leuchold, Dalmeny Park, Edinburgh  
 1909 M'Lay, Thomas, Kinglass Farm, Bo'ness  
 1883 MacNab, John, Glenmavis, Bathgate  
 1900 Marshall, William, Barbauchlaw, Armdale  
 1908 Martin, Samuel, The Den, Winchburgh  
 1879 Masson, Rev. Alex., The Manse, Kirkliston  
 1906 Milne, James, Home Farm, Dundas, South Queensferry  
 1877 Mitchell, George, Broxburn Park, Broxburn  
 1859 Morrison, J., West Dalmeny, Dalmeny  
 1910 Newlands, Alexander, Implement Works, Provost Road, Linlithgow  
 1888 Nimmo, Thos., Kirklands, Winchburgh  
 1907 Nisbet, Robert, Hilderston, Bathgate

## Admitted

- 1893 Paul, James, Walton, Linlithgow  
 1908 Paul, John, Stacks, Linlithgow  
 1907 Potter, John, Craigend, South Queensferry  
 1896 Ralston, A. Agnew, Philipstoun House, Philipstoun  
 1907 Ramsay, T. Y., District Road Surveyor, Bathgate  
 1868† Rosebery, The Earl of, K.G., Dalmeny Park, Edinburgh  
 1880 Rough, Robert L. (R. Rough & Sons), Broxburn  
 1908 Russell, Richard, Mossie Farm, Bathgate  
 1908 Sinclair, George, Home Farm, Dalmeny Park, Edinburgh  
 1906 Smith, Robt., Westfield, Winchburgh  
 1864 Stewart, Captain R., of Westwood, West Calder  
 1906 Stewart, George, Drum Farm, Bridge-ness  
 1909 Stirling, Wm., Drum Farm, Bathgate  
 1892 Thomson, Seton Murray, Preston House, Linlithgow  
 1888 Tod, Wm., Fardovan, Philipstoun  
 1907 Wardlaw, Thomas, Milton, South Queensferry  
 1907 Wilson, Wm., Boghall, Linlithgow  
 1905 Wolfe, George, Millburn, Bathgate  
 1907 Wood, James, Wallhouse, Torphichen

NUMBER OF MEMBERS, 553.

## 5.—ABERDEEN DISTRICT.

## EMBRACING THE

## COUNTIES OF ABERDEEN, BANFF, FORFAR (EASTERN DIVISION), AND KINCARDINE.

## ABERDEEN.

## Admitted

- 1908 ABERCROMBY, Sir George, of Forglen, Bart., Turriff  
 1908 Abercromby, Keith Douglas, Kinbroom House, Rothiemorman  
 1868\*† ABERDEEN, The Earl of, K.T., Haddo House, Aberdeen  
 1885 Abernethy, David W., Ferryhill Foundry, Aberdeen  
 1875 Ainslie, William, Logierieve, Ellon  
 1894 Aitchison, Walter, Coniclauch, Huntly  
 1876 Alexander, George, South Balnook, Huntly  
 1901 Alexander, George, Wrae, Turriff  
 1901 Allan, James R., Ashgrove Engineering Works, Aberdeen  
 1889 Allan, John, Aikenshill, Cultercullen, Aberdeen  
 1901 Allan, Richard S., Ashgrove Engineering Works, Aberdeen  
 1902 Anderson, George, 154 Union Street, Aberdeen  
 1894 Anderson, Geo., Nether Aucharnie, Forgue, Huntly  
 1885 Anderson, George, West Fingask, Old Meldrum  
 1902 Anderson, George Alexander, Comisty, Forgue, Huntly  
 1876 Anderson, John M., Den o' Howie, Mintlaw  
 1908 Anderson, Robert, of Fingask, Old Meldrum  
 1881 Anderson, Robert, Wester Condl, Tarland  
 1902 Anderson, Robert, Aucharnie, Forgue, Huntly  
 1906 Anderson, Robt. John, jun., Auctioneer, Aberdeen  
 1907 Anderson, Wm., Home Farm, Hopewell, Tarland  
 1908 Andersen, Wm., West Clividy, Keig  
 1894 Anderson, William, Saphock, Old Meldrum  
 1876 Anderson, William, Wardes, Kintore  
 1907 Argo, George, Petty, Fyvie  
 1906 Argo, James, Crannabog, Rothiemorman  
 1882 Argo, James, Denend, Udry, Aberdeen  
 1902 Armstrong, John, Whitehills, Cairnie, Huntly  
 1908 Arnott, John, The Square, Huntly  
 1898 Ballingall, Robert Bennie, Crimmoncragate, Lenmoy  
 1900 Barclay-Harvey, Jas. Chas., of Kintore, Dinnet  
 1902 Barrie, James, Home Farm, Balmuccie, Aberdeen  
 1884 Barron, Geo. F., Thomastown, Auchtermolech  
 1908 Baxter, William, Barbet, Old Meldrum  
 1885 Bean, James, Mains of Dumbreck, Udry

## Admitted

- 1902 Beddie, Alex., Ardziel, Strichen  
 1906 Beddie, James, Banks, Strichen  
 1906 Beddie, L. B., Saltoun Place, Fraserburgh  
 1904 Bell, Andrew, Litterty, Turriff  
 1902 Bell, John, Auction Mart, Fraserburgh  
 1888 Bennett, L., 98 Sunnyside Road, Aberdeen  
 1894 Bennet, Wm., Little Forgue, Forgue  
 1894 Black, Wm., Southerhill, Skene, Aberdeen  
 1908 Booth, James, of Downiehill, Peterhead  
 1898 Booth, Matthew, Darrahill, Foveran  
 1884 Bothwell, Wm., Berryhill, Bridge of Don, Aberdeen  
 1908 Braid, F. L., Witchhill House, Fraserburgh  
 1895 Brand, Robert, Ardiffery, Cruden, Ellon  
 1908 Bremner, John, Old Mill, Strichen  
 1895 Brown, Alexander G., Whitehill House, Fraserburgh  
 1908 Brown, G., Bonny Kelly, New Pitaligo  
 1902 Brown, James, Braco, Strichen  
 1899 Brown, James, Crosstone, Ellon  
 1884 Brown, John, Craigie Cottage, Hardgate, Aberdeen  
 1908 Brown, John, 216 Union Street, Aberdeen  
 1884 Brown, Robert, Maryville, Stockel, Aberdeen  
 1908 Brown, Robert, Banchory Devenick Estate Office, Aberdeen  
 1902 Brown, Robt. J., Overhill, Melbavie  
 1909 Bruce, George A., Inshield, Inverurie  
 1876 Bruce, James, Colliestie, Cairnie  
 1876 Bruce, Peter, Greenhaugh, Inverurie, Aberdeen  
 1901 Bruce, Robert, Heatherwick, Inverurie  
 1909 Burn, Col., M.P., Fyvie Castle, Fyvie  
 1894 Burnet, Sir Thomas, of Leys, Bart., Crathes Castle, Aberdeen  
 1908 Burns, Alexander, jun., Newmarket Aberdeen  
 1876 Burr, Alexander, Tulloford, Old Meldrum  
 1908 Calder, Andrew, Cairnryan, Cairnryan  
 1901 Callander, William, Fochabers, Aberdeenshire  
 1901 Campbell, George, Banchory Devenick, Aberdeen  
 1900 Cantlay, William, of Cairnryan, Cairnryan, Aberdeen  
 1894 Carone, Andrew, of Cairnryan, Cairnryan, Aberdeen  
 1894 Carone, Andrew, of Cairnryan, Cairnryan, Aberdeen  
 1907 Carr, George, of Cairnryan, Cairnryan, Aberdeen  
 1885 Carr, George, of Cairnryan, Cairnryan, Aberdeen



## Admitted

- 1864 Chalmers, Wm., Summerhill, New Machar, Aberdeen  
 1880 Chaplin, G. Robertson, Crimmonmogate Estates Office, Lonmay  
 1899 Chapman, Archibald, of Slackadale, Turriff  
 1894 Chapman, Wm., Woodhead, Aberdour, Fraserburgh  
 1873 Charles, John, Banker, Inverurie  
 1894 Charles, Wm., Gammons, Rothienorman  
 1894 Chessor, James, Craigiebanks, Fraserburgh  
 1908 Christie, Chas., Estates Office, Strathdon  
 1908 Clapperton, James M., 177 Union Street, Aberdeen  
 1908 Clapperton, Thos. N., Carlton Restaurant, Union Street, Aberdeen  
 1908 Clark, John, Woodlands Cottage, 804 Holburn Street, Aberdeen  
 1873 Clarke, William, Hopewell, Tairland  
 1908 Cocker, John, Hill of Petty, Fyvie  
 1899 Cocker, William, 130 Union Street, Aberdeen  
 1910 Collie, George, Hillbrae, Bourtree, Inverurie  
 1886 Collie, Wm., Priestwells, Inch  
 1908 Colman, W. H., of Blalack and Deskry, Dinnert, Aberdeen  
 1871 Cook, Charles, Garden House, Aberdeen  
 1901 Cook, James M., Waterside of Forbes, Alford, N.B.  
 1894 Cook, Thomas Nicol, Waterside, Newburgh, Aberdeen  
 1894 Cooper, John A., Dunnydeer, Inch  
 1876 Copland, Alexander, 78 Dee Street, Aberdeen  
 1891 Copland, Robert, Milton, Ardlethen, Ellon  
 1894 Couper, J. C. Ogston, of Craigiebuckler, Aberdeen  
 1908 Courage, David, Royal Oak Bar, Marischal Street, Aberdeen  
 1908 Cowie, Alex., 1 Castle Street, Ellon  
 1908 Cowie, G. W., Easter Bo., Fisheries, Turriff  
 1908 Cowie, John, North Auchinna, Inverkeithnie, Turriff  
 1887 Crabb, Dd., New Aberdour, Fraserburgh  
 1902 Craig, Alex., 58 Schoolhill, Aberdeen  
 1878 Craz, George, Old Morlich, Inverkindie  
 1902 Craz, William, Gerrie, Huntly  
 1883 Croll, Thos., Culls, Aberdeenshire  
 1902 Crombie, Alex., Woodend, New Machar  
 1910 Crombie, Theodore, of Culter, 18 Albyn Place, Aberdeen  
 1908 Crozier, John D., Durris, Drumoak  
 1908 Cruickshank, Alex., Aberdeen Lime Co., Port Errol  
 1902 Cruickshank, George Leslie, Fyvie  
 1906 Cruickshank, John W., Logienewton, Rothienorman  
 1894 Cruickshank, Robert, Claymires, Turriff  
 1911 Cunningham, John, Easterton, Peterhead  
 1909 Cushnie, James, Collonsach, Drumoak  
 1895 Davidson, Adam, Boghead of Denlugas, Turriff  
 1908 Davidson, Alex., Bankhead, Bridge of Dee, Aberdeen  
 1896 Davidson, Major D. F., of Dess, Aberdeenshire  
 1894 Davidson, James, of Holmwood, Aberdeen  
 1894 Davidson, James, Newton, Cairnie, Huntly  
 1909 Davidson, Samuel, Northseat, Auchedly, Tarras

## Admitted

- 1906 Davidson, William, Burnside House, Turriff  
 1902 Davidson, William, Road Surveyor, Ellon  
 1905 Davie, W. A., M.A., B.Sc., Bogentassie, Lumphann  
 1894 Dawson, Geo., The Manor Farm, Memsie, Fraserburgh  
 1908 Dawson, Wm., M.A., B.Sc., Marischal College, Aberdeen  
 1886 Dawson, W. F. G., North of Scotland Bank, Inch  
 1896 Diack, James, Pittodrie, Pitcaple  
 1884 Duff, G. A., of Hatton, Turriff  
 1894 Duff, James Murray, 814 Great Western Road, Aberdeen  
 1902 Dunbar, John C. F., 3 Golden Square, Aberdeen  
 1886 Duncan, Alexander, 602 Holburn Street, Aberdeen  
 1908 Duncan George, Reinchall, Desswood Place, Aberdeen  
 1910 Duncan, Hugh, Whitestripes, Woodside, Aberdeen  
 1908 Duncan, James, Urieside, Inverurie  
 1901 Duncan, John William, 477 King Street, Aberdeen  
 1877 Duncan, Patrick, Balchers, King Edward  
 1906 Duncan, Robt., Salesman, King Street, Aberdeen  
 1908 Dunn, Frank, Middle Ardo, Belhelvie  
 1908 Dunn, Peter, Wester Leochel, Whitehouse  
 1894 Durno, James, Easter Town, Old Meldrum  
 1879 Durno, James, Jackston, Rothienorman  
 1909 Durno, James, jun., Jackston, Rothienorman  
 1894 Durno, James, Rothiebrishane, Fyvie  
 1909 Durno, Jas. Wm., Mains of Glack, Pitcaple  
 1885 Durno, Leslie, Mains of Glack, Old Meldrum  
 1891 Durward, Robert, Blalack, Coldstone, Dinnert  
 1908 Duthie, J. A., 72 Guild Street, Aberdeen  
 1868 Duthie, William, Collynie, Tarves  
 1908 Edwards, Alfred W., 29 Union Street, Aberdeen  
 1902 Ellis, James A., Mains, Cairncoullie, Cushnie, Alford  
 1902 Ellis, William D., Kinclune, Towie, Glenkindie  
 1901 Elmslie, William, Crookmore, Alford, N.B.  
 1900 Esslemont, George B., M.P., King's Acre, Kingsgate, Aberdeen  
 1902 Farquhar, Charles, Skelmanac, Strichen  
 1895 Farquhar, James, Oldocht, Aberdeen  
 1906 Farquharson, Major James, of Corrachree, Tairland  
 1865 Farquharson, John, 87 Westburn Road, Aberdeen  
 1901 Farquharson, W. S., of Whitehouse, Aberdeen  
 1872 Ferguson, Lieut.-Col. George A., of Pitfour, Mintlaw  
 1898 Ferguson, James, of Kinmundy, Mintlaw (10 Wemyss Place, Edin.)  
 1894 Fiddes, Alex. Harvey, Melkie Haddo, Foveran  
 1884 Fife, The Duke of, K.T., Mar Lodge, Braemar  
 1908 Findlay, Robert, Wester Clova, Kildrummy, Mossat  
 1904 Florence, Alexander, Knowley, Rayne, Wartle  
 1872 Forbes, Right Hon. Lord, Castle Forbes, Tarras

## Admitted

- 1901 Forbes, Harry, Greystone, Tullynessle, Alford, N.B.  
 1893 Forbes, J. C. Ogilvie, of Boyndlie, Fraserburgh  
 1902 Forbes, John Walter, of Corse, Lumphanan  
 1885 Forbes, William, Ruthven, Dinnet  
 1903 Forbes, William, Muirton of Barra, Old Meldrum  
 1907 Forbes, Capt. The Hon. W. R. D., Byth House, Turriff  
 1885 Fowle, James, Brucehill, New Deer  
 1909 Fowle, John, Adziel, Strichen  
 1872 France, C. S., 18 Cairnfield Place, Aberdeen  
 1908 Fraser, Hugh, Aberdour Hotel, Fraserburgh  
 1903 Fraser, Thomas, Terneystrype, Turriff  
 1908 Gail, Wm., Newton of Hythie, Mintlaw Station  
 1874 Garden, Robert, Newseat of Tolquhon, Tarves  
 1891 Gammell, Sydney J., Countesswells House, Bieldside, Aberdeen  
 1882 Garvie, R. G., Bon-Accord Lane, Aberdeen  
 1903 Gellie, James, 62 Beaconsfield Place, Aberdeen  
 1908 Glegg, Robt., Marischal College, Aberdeen  
 1902 Glen, William, Clerkhill, Peterhead  
 1904 Godaman, David M., Mains of Fedderate, Brucklay  
 1908 Gordon, Alexander, Melkie Endovle, Alford  
 1876 Gordon, A. M., of Newton, Insch—  
*Honorary Secretary of the Society*  
 1903 Gordon, Alex. Theodore, yr. of Newton, Insch  
 1907 Gordon, Mrs A. T., Freefield, Insch  
 1894 Gordon, Charles T., of Cairness, 40 Drummond Place, Edinburgh  
 1907 Gordon, Major-General C. G., Culdrain, Gartly  
 1876 Gordon, Henry, of Manar, Inverurie  
 1886 Gordon, Henry G. Fellowes, of Knockespoock, Olatt  
 1905 Gordon, Reginald Hugh Lyall of Abergeldie (15 Belmont Park, Lee, Kent)  
 1894 Gordon, Wm. Fowle, Broomhills, Pitalligo  
 1908 Gordon, Colonel John Wolrige, of Halhead, Baslemont, Ellon  
 1889 Grant, Sir Arthur, of Monymusk, Bart.  
 1878 Grant, John, Banker, Methlick  
 1895 Grant, F. A. H., of Druminnor, Rhynie  
 1894 Grant, William, Faichill, Gartly  
 1908 Grassick, W. H., Daviot Branch Asylum, Pittsapple  
 1908 Gray, Alex. (J. & W. Henderson), Aberdeen  
 1902 Gray, John, Ardlaw Mains, Fraserburgh  
 1894 Gray, William, Balgove, Old Meldrum  
 1884 Gray, William, Kellyford, Old Meldrum  
 1902 Gregor, James, Invercauld Arms Hotel, Braemar  
 1908 Greig, Dr C., Fyvie  
 1890 Greig, George, Bridge of Don, Aberdeen  
 1892 Greig, R. B., Marischal College, Aberdeen—  
*Pres. Life Member*  
 1876 Hall, Alex. H., 8 Braemar Place, Aberdeen  
 1897 Harper, Robert J., Methlick, Insch  
 1894 Harvey, Alex., Hunter, Fiddesbeg, Foveran, Aberdeenshire  
 1886 Hay, Alexander, 18 Gladstone Place, Aberdeen

## Admitted

- 1902 Hay, John Rae, Little Ythsie, Tarves  
 1910 Hay, William Anderson, Commercial Road, Aberdeen  
 1890 Haynes, George J., Estate Office, Castle Fraser, Kemnay  
 1900 Hendrick, James, B.Sc., F.I.C., Marischal College, Aberdeen—*Chemist to the Society*  
 1902 Hendry, A. M., Affleck, Huntly  
 1905 Hendry, George, Crown Mansions, 41½ Union Street, Aberdeen  
 1898 Hendry, Peter, Hillockhead, Huntly  
 1908 Henry, James, Kinaldie, Dinnet  
 1906 Hill, F. Godfrey, Little Haddo, Newburgh, Aberdeen  
 1909 Hopkins, John (North of Scotland Milling Co., Ltd.), Inverurie  
 1901 Howie, George, M.R.C.V.S., Alford, N.B.  
 1892 Huggan, John A., 35 Market St., Aberdeen  
 1884 Hunter, Charles (Bon Accord Engineering Co., Ltd.), Upper Mills of Drum, Crathes  
 1894 Hunter, James, Temora, West Cults, Aberdeen  
 1908 Hunter, John, Seggat, Auchterless  
 1903 Hunter, Stephen (Northern Agricultural Co., Ltd.), Aberdeen  
 1872† Huntly, The Marquis of, Aboyne Castle, Aboyne  
 1884 Hutcheon, Alex., Nether Ordley, Auchterless, Turriff  
 1899 Hutcheon, George, Skeen House, Turriff  
 1905 Hutcheon, John, yst., Ordley, Auchterless, Turriff  
 1908 Imlach, Alex., Alford  
 1908 Imley, John M., Middleton of Tullos, Nigg  
 1908 Ingram, Alex., Balquharn, Tullynessle, Alford  
 1846† Innes, Col. Thomas, of Learney, 25 Belmont Street, Aberdeen  
 1911 Ironside, William, Littlehill, Maud, Aberdeenshire  
 1905 Irvine, A. F., of Drum, Drumoak  
 1908 Irvine, Charles G. D., The Cottage, Pitfour, Mintlaw  
 1876 Jaffray, James, 10 Margaret Street, Aberdeen  
 1908 Jamieson, Jas., Nether Balfour, Durris, Drumoak  
 1909 Jessiman, James, North of Scotland Milling Co., Ltd., Inverurie  
 1898 Johnston, Alex., V.S., Gordonsburg, Rothienorman  
 1908 Johnston, James W., Nether Darley, Auchterless, Fyvie  
 1865 Joss, John, Cruchie, Huntly  
 1894 Keith, Alexander, Kinermrit, Turriff  
 1894 Keith, Alex., Sydsader Hill, Lomay  
 1907 Keith, James, Pittmedden, Udry  
 1901 Keith, M. J., Bruckley Estates Office, Aberdour House, New Aberdeen  
 1902 Kemp, Charles, Auchinclova, Rothiemay  
 1907 Kemp, William, Aldie, Fort George, Graden  
 1909 Kennedy, F. S., Milling Co., Ltd., Inverurie  
 1876 Kilmour, Robert, Ardlaw, Aberdeen  
 1908 King, Lieut.-Col. Alex. J., 100, R. R. Tower, Kinnaird  
 1910 King, Andrew, 100, R. R. Tower, Kinnaird  
 1874† Kinnear, Bart., 100, R. R. Tower, Kinnaird  
 1885 Law, John, 100, R. R. Tower, Kinnaird  
 1905 Lawrie, Alex., 100, R. R. Tower, Kinnaird  
 1876 Lawrie, Alex., 100, R. R. Tower, Kinnaird  
 1899 Lawrie, Alex., 100, R. R. Tower, Kinnaird

## Admitted

- 1908 Lees, Ernest A. G., Durris Estate Office, Aberdeen  
 1908 Leggat, William K., Yonderton, Turriff  
 1896 Leith, Colonel Alex., of Glenkindie, Aberdeenshire  
 1890† Larnn, of Fyvie, Lord, Fyvie Castle, Fyvie  
 1869 Leith, Major Thomas, Petmathen, Oyne  
 1900 Leith-Hay, Chas. E. N., of Leith Hall, Kennethmont  
 1885 Leslie, David, Lochhills, New Machar  
 1909 Leslie, J. Dean, Nethermuir, New Deer  
 1908 Leslie, James, Middlemuir, Belhelvie  
 1898 Leslie, John, The Briars, Bieldside, Aberdeen—*Free Life Member*  
 1905 Leslie, R. W. H. Crawford, of Rothie-norman  
 1892 Littlejohn, Geo., Wellhouse, Alford, N.B.  
 1908 Littlejohn, Robert, 19 Westburn Drive, Aberdeen  
 1876 Littlejohn, Wm., 112 Clifton Road, Aberdeen  
 1906 Iobban, Wm., Loanhead, Drumblade, Huntly  
 1908 Loutit, Rev. John S., Manse of Foveran, Aberdeenshire  
 1906 Lumsden, E. F., Balmedie, Aberdeen  
 1869 Lumsden, Henry, of Pitcaple, Pitcaple  
 1877 Lumsden, H. G., of Auchindoir, Aberdeen  
 1909 Lumsden, Captain H. T., of Balmedie, Aberdeen  
 1902 Lumsden, Hugh P., The Clova Home Farm, Lumsden  
 1894 Lyon, Sir Alex., 278 George Street, Aberdeen  
 1894 Macdonald, Jas., Bridgend, Mossat, Kildrumny, Aberdeen  
 1903 Macdonald, L., Fife Arms Hotel, Braemar  
 1902 Macdonald, Ranald R., Cluny Estates Office, 16 Union Terrace, Aberdeen  
 1902 M'Donald, Wm. Yeats, of Aquharney, Hatton  
 1908 M'Hardy, Jas. R., Brucktor, Inverurie  
 1908 M'Hardy, Peter, 30 Guild Street, Aberdeen  
 1901 Macintyre, A. M., Towie Barclay, Auchterless Station  
 1908 M'Kay, Peter, Kinnoir, Huntly  
 1908 Mackenzie, William Alex., Linnhead, Foveran  
 1908 Mackie, Thomas, Mains of Rhynie, Rhynie, Gartly  
 1908 M'Kinlay, James, The Mill Farm, New Aberdour, Fraserburgh  
 1894 M'Laggan, Jas., Bank Agent, Torphins  
 1887 M'Lean, Neil, of Breda, Alford, N.B.  
 1902 M'Leod, Alex., Upper Cook, Fishrie, Turriff  
 1902 M'Pherson, Jas. S., M.A., Schoolhouse, Ythan Wells, Inch  
 1888 M'Robbie, Alex., Sunnyside, Aberdeen  
 1904 M'Robert, A. T. (Aberdeen Lime Co.), Aberdeen  
 1887 Maitland, Harry Reid, Haddo, Methlick—*Free Life Member*  
 1894 Maitland, Robert Cruickshank, Balhalgardy, Inverurie  
 1910 Maitland, William, East Balhalgardy, Inverurie  
 1858 Maitland, Wm., Hillview, Inch, Aberdeenshire  
 1902 Maitland, William, Lime Co., Aberdeen  
 1902 Maitland, Wm., Pittulnie, Auchterless, Turriff  
 1876 Marr, John, Upper Mill, Tarves  
 1908 Marshall, Wm., 7 Langstane Place, Aberdeen  
 1894 Mearns, Daniel, Quayside, Aberdeen  
 1875 Mearns, Rev. Duncan G., of Dishblair, Aberdeenshire

## Admitted

- 1908 Melvin, Peter, Middle Gateside, Culsalmond, Inch  
 1892 Mennie, A. M'G., Brawlandknowes, Gartly  
 1875 Merson, James, Craikwillie, Huntly  
 1893 Merson, John, Millhill, Gartly  
 1908 Michie, Jas., Cairnbeathie, Lumphanan  
 1895 Michie, John, M.V.O., Balmoral, Ballater  
 1878 Middleton, Alex., Belmont, Aberdeen  
 1908 Middleton, A., jun., Belmont, Aberdeen  
 1906 Miller, J. P., Sandlands Chemical Works, Aberdeen  
 1895 Milligan, D. M. M., 245 Union Street, Aberdeen  
 1908 Milne, Alex., Kingseat Asylum, New Machar  
 1900 Milne, Alex., Pickerton, Fraserburgh  
 1908 Milne, Andrew, Wester Durris, Drum-oak  
 1909 Milne, And., Wester Bora, Mintlaw (5 Ferryhill Place, Aberdeen)  
 1904 Milne, Colonel George, Logie Elphinstone  
 1908 Milne, Harry, Fetterletter, Fyvie  
 1894 Milne, James, Pittendrum, Pitsligo, Fraserburgh  
 1908 Milne, John, Contractor, Braemar  
 1867 Milne, John, Inverurie—*Free Life Member*, 1873  
 1887 Milne, Robt., Corse of Kinnoir, Huntly  
 1908 Milne, Robert, Wester Durris, Drum-oak  
 1908 Mitchell, John, Royal Athenæum Hotel, Aberdeen  
 1868 Mitchell, William A., Auchnagathel, Kelg  
 1886 Moir, Alexander, Hilton Street, Aberdeen  
 1907 Moir, J. R., Central Auction Mart, Kittybrewater, Aberdeen  
 1894 Morrison, Alex. Smith, Stonebriggs, Pitsligo, Fraserburgh  
 1886 Morrison, Andrew, Upper Cotburn, Turriff  
 1908 Morrison, Anthony, Phingask, Fraserburgh  
 1908 Morrison, George Alex., Botarie Mains, Cairnie, Huntly  
 1902 Morrison, James, 63 Carden Place, Aberdeen  
 1908 Morrison, James, jun., Durno House, Pitcaple  
 1908 Mortimer, John, Old Kelg, Kelg  
 1894 Mowat, John, Craignaud, by New Pitsligo  
 1908 Muller, Adolph, 184 West North Street, Aberdeen  
 1900 Munro, Henry, 10 Crown Street, Aberdeen  
 1902 Murison, Wm., County Clerk, Aberdeen  
 1908 Murray, John, Mains of Lessendrum, Drumblade  
 1894 Mutch, James G., 5 Burns Road, Aberdeen  
 1902 Nicol, Randall Jas., yr. of Ballogie, Aboyno  
 1869 Nicol, W. E., of Ballogie, Aboyno  
 1908 Niven, Samuel A., Sunnyside, Rothie-norman  
 1882 Norrie, Wm., Cairnhill, Monquhitler, Turriff—*Free Life Member*  
 1894 Ogg, Charles, Baltimore, Glenbucklet  
 1882 Ogston, Alex. M., of Ardor, Aberdeen  
 1894 Park, Wm., Woodhead, Cairness, Lomnay, Fraserburgh  
 1901 Paterson, James, Newbigging, Whitehouse, Aberdeen  
 1909 Paterson, Robert, Lendrum, Auchterless Station

## Admitted

- 1908 Paxton, W., Savoch, Foveran, Aberdeen  
 1909 Penny, Charles, Skillymarno, Strichen  
 1902 Penny, Joseph, Ardlay Villa, Longside  
 1908 Petrie, James M'G., Glenlogie, Forbes, Alford  
 1908 Philip, J. F., Garchory, Corgarf, Strathdon  
 1894 Philip, John, Bellevue, Dyce, Aberdeen  
 1909 Philip, John, Lofthillock, Inverurie  
 1894 Philip, William, Boynds, Inverurie  
 1895 Pirie, Arthur, Cartlohaugh, Mintlaw Station  
 1902 Pirie, George, Bank Agent, Ellon  
 1859 Pittendrig, A., Mains of Park, Lonmay  
 1909 Primrose, Jas., Auchincloch, Rothiemay  
 1905 Profett, W. J., M.A., B.Sc., Marischal College, Aberdeen  
 1882 Rae, John, Corn Merchant, Ellon  
 1882 Rae, Wm., Advocate, Aberdeen  
 1894 Ramsay, William, Jun., Dyce  
 1910 Rankine, William, Roseville, Bucksburn, Aberdeenshire  
 1903 Reid, Alfred H., Hillhead, Ellon, Aberdeen  
 1891 Reid, David, Crofts of Glenmulok, Ballater  
 1902 Reid, James, Hayfield, Peterhead  
 1877 Reid, Dr James, Templeton, Mossat  
 1884 Reid, John, Don Bank, Alford, N.B.  
 1894 Reid, John Low, Cromlybank, Ellon, Aberdeenshire  
 1902 Reid, Robt., Belhelvie, Old Meldrum  
 1885 Reid, Wm., 8 Hadden Street, Aberdeen  
 1908 Reith, William, Kennerty, Peterculter  
 1909 Reith, William, Lower Middlefield, Woodside, Aberdeen  
 1908 Rennie, C., Wester Fintray, Kinaldie  
 1908 Rennie, Jas., Milton, Fintray, Kinaldie  
 1902 Ritchie, John Neish, Schoolhill, Turriff  
 1902 Ritchie, William, Balcarrin, Old Meldrum  
 1908 Robertson, Alex., Burnside, Newhills, Countesswells, Aberdeen  
 1908 Robertson, James, 14 Hadden Street, Aberdeen  
 1901 Robertson, John, Kirkland, Forgus, Huntly  
 1885 Robson, Alex. (W. Smith & Sons), Aberdeen  
 1908 Roger, Peter, Kinbroon, Rothienorman  
 1858 Ross, H., care of the Secretary, Mutual Improvement Association, Tairland  
 1893 Ross, R. R., Balmoral Buildings, 67-71 Green, Aberdeen  
 1871 Ross, Wm., Annesley, Torphims  
 1885 Rundiman, James, Castleton, King Edward  
 1885 Rundiman, John, Auchmull, King Edward  
 1894 Russell, Major-General F. S., C.M.G., of Aden, Mintlaw  
 1894 Salloum, Right Hon. Lord, Philorth House, Fraserburgh  
 1909 Sangster, Alex., Drumhead, Belhelvie  
 1901 Sangster, John, Manager, Aberdeen Commercial Co., Aberdeen  
 1894 Scott, Jas., Brucke, New Maud, Aberdeenshire  
 1906 Scott, John, Bruntstane, Huntly  
 1894 Scott, John, Factor and Banker, New Pittligo  
 1881 Scott, Ronald, 58 Fountainhall Road, Aberdeen  
 1885 Sellar, R. H. N., Implement Maker, Huntly  
 1907 Semple, Laid, Fintray House, Aberdeenshire  
 1894 Sharp, Jas. Smith, Burryhillock, Premnay  
 1894 Shearer, Eric Jas., Maybank Works, Turriff

## Admitted

- 1896 Shephard, William, Bellestraid, Logie Coldstone, Dinnet  
 1902 Sim, Alex., Home Farm, Muirton, Belhelvie  
 1900 Sin, George F., Lochend, Ardoe, Aberdeen  
 1902 Sim, William, Jessfield Countesswells  
 1906 Simpson, Alex., Broadland, Cairnie, Huntly  
 1894 Simpson, George, Fernhill, Aberdeen  
 1902 Simpson, James, Drumdelgie, Cairnie, Huntly  
 1885 Simpson, John, Implement Maker, Peterhead  
 1908 Simpson, John, 2 King Street, Aberdeen  
 1908 Simpson, John, Slioch, Huntly  
 1895 Sivewright, Adam, M.R.C.V.S., Tairland  
 1889 Skirving, Robert, of Cobairdy, Huntly  
 1853 Sleigh, John, Strichen Mains, Strichen  
 1896 Sleigh, John P., St John's Wells, Fyvie  
 1902 Smith, Alex., South Monecth, Echt  
 1902 Smith, Andrew, Invercauld Estate Office, Ballater  
 1902 Smith, Charles, Westerton, Huntly  
 1895 Smith, C. G., The Mains, Haddo House, Aberdeen  
 1894 Smith, George, Kilreen, 28 King's Gate, Aberdeen  
 1906 Smith, George, of Pittodrie, Pitcaple  
 1885 Smith, James, Bank House, Strichen  
 1908 Smith, James, Northern Agricultural Co., Ltd., Turriff  
 1909 Smith, James A., Bank House, Strichen  
 1908 Smith, John, Pittodrie House, Milltimber, Peterculter  
 1894 Smith, Robert, Boggieshalloch, Turriff  
 1894 Smith, W. J. Woodman, 20 King Street, Aberdeen  
 1908 Smythe, George H., Balcarras Hotel, Echt  
 1908 Snowie, George, Taitswell, Mintlaw  
 1902 Spark, Wm. A., Glenbucket, Bridge of Bucket  
 1909 Spence, Alex., Forbes Arms Hotel, Alford  
 1902 Stephen, Robert, Largs, Forgus, Huntly  
 1894 Stewart, Alexander G., Ballaterach, Dinnet  
 1835 Still, Geo., Strathray, Kinnellar, Blackburn, Aberdeen  
 1898 Stodart, George, Huntly  
 1894 Stoddart, Geo., Aryburn, Dyce  
 1908 Stoddart, Wm., Ferwinnes, Dyce  
 1888 Strachan, Alex., Wester Fowla, Alford  
 1878 Strachan, Charles, Tillyorn, Tairland  
 1894 Strachan, Patrick, Eastown, Tairland  
 1894 Strachan, William, Upper, Muirden, Turriff  
 1885 Stuart, E. R. Burnett, of Dens and Orchie, Mintlaw  
 1902 Stuart, Robert, Parks, Logie-Coldstone, Dinnet  
 1894 Stuart, William, Harlandsfield, Kennetmont  
 1909 Sutcliffe, Peter, Monymusk, Peterculter  
 1876 Tait, John, Orchie, Tairland  
 1909 Taylor, George, House, Tairland  
 1902 Thom, Jas. C., Tairland, Tairland  
 1897 Thomson, James, Tairland, Tairland  
 1894 Thomson, James, Tairland, Tairland  
 1894 Thomson, James, Tairland, Tairland  
 1894 Thomson, James, Tairland, Tairland

## Admitted

- 1898 Turner, John, Kinharraichie, Ellon  
 1878 Udney, J. H. F., of Udney and Dudwick, Aberdeen  
 1876 Urruhart, Colonel F. P., of Craigston, Turriff  
 1884 Walker, David, Coullie, Udney  
 1902 Walker, George, Tillygreig, Udney  
 1862 Walker, John, 66 Fountainhall Road, Aberdeen  
 1908 Walker, John, Westside of Brae, Kildrumny  
 1898 Walker, Roderick, Meiklefolia, Rothienorman  
 1894 Watson, David, Burnthill, Fraserburgh  
 1905 Watson, George, Old Craig, Meikle Wartle, Aberdeenshire  
 1894 Watson, Wm., Middlemuir, Aberdour, Strichen  
 1908 Watt, George, 41 Carlton Place, Aberdeen  
 1889 Watt, John, Newton of Mounie, Daviot, Old Meldrum  
 1894 Webster, James C., Millmoss, Turriff, N.B.  
 1908 Webster, John Duthie, The Bank, Tarves  
 1892 Webster, William, 15 Louisville Avenue, Aberdeen  
 1902 Williamson, David D., Auldtown of Carnousie, Forgiven, Turriff  
 1909 Williamson, H. C., M.A., D.Sc., 28 Palmuir Road, Aberdeen  
 1902 Wilson, Rev. Alex., M.A., The Manse, Ythan Wells, Inch  
 1895 Wilson, Alex. S., 128½ Union Street, Aberdeen  
 1894 Wilson, C. F., Old Ford Road, Aberdeen  
 1894 Wilson, Geo., Badentyre, Turriff  
 1909 Wilson, James (Northern Agricultural Co.), Inverurie  
 1904 Wilson, R., Newton, Methlick  
 1895 Wilson, Robt. M., M.D., Party, Ellon  
 1885 Wilson, Wm., Coyneach, Gartly  
 1902 Wisely, William, 81 Virginia Street, Aberdeen  
 1909 Wood, Wm. (Aberdeen Lime Co., Ltd.), Turriff  
 1901 Young, George, Greenhall, Inch, Aberdeenshire  
 1908 Young, John M'Lauchlan, F.R.C.V.S., F.R.S.E., Marischal College, Aberdeen  
 1908 Yule, Charles, Northern Auction Mart, Huntly

## BANFF.

- 1902 Alexander, E. W., Newton of Olunie, Marnoch  
 1898 Allan, George M., of Montbletton, Banff  
 1900 Anderson, William, M.R.C.V.S., Keith  
 1893 Barclay, Geo., Strocherie, King Edward, Banff  
 1898 Beaton, L., The Farm, Cullen House, Cullen  
 1899 Bisset, Colin, Home Farm, West Elchies, Aberlour  
 1898 Bisset, James, of Paddocklaw, Kinshade, Macduff  
 1909 Brown, David, Crovie Farm, Dubford, Banff  
 1894 Cameron, Geo., Hogbain, Keith, N.B.  
 1875 Campbell, James, LL.D., Cullen House, Cullen  
 1908 Chisholm, John, Banffshire District Asylum Ladybridge, Banff

## Admitted

- 1894 Craigie, William, Pennan Farm, Banff  
 1888 Cran, John, Butcher, Keith  
 1902 Cruickshank, Captain A., Afforsk, Gamrie, Banff  
 1889 Cumming, J. F., Cardow, Craigellachie  
 1902 Davidson, Andrew, Mains of Balmad, King Edward  
 1909 Dawson, John, Chemist, Keith  
 1893 Donald, George, of Ladyhill, Grange, Keith  
 1880 Duff, Thomas Gordon, of Drummur, Keith  
 1904 Edgar, Alex., Delnashaugh Hotel, Ballindaloch  
 1888 Edgar, James, The Hotel, Craigellachie  
 1902 Forbes, Alexander, Rettie, Boyndie, Banff  
 1893 Fortune, John, Broom, Portsoy  
 1902 Garden, Francis Alexander, of Troup, Banff  
 1895 Gill, George, of Bloodymire, Macduff  
 1898 Grant, George, Glenfarclas, Ballindaloch  
 1876 Grant, G. S., Auchorachan, Glenlivet, Ballindaloch  
 1903 Grant, James, 25 Castle Street, Banff  
 1902 Grant, James, Glenconglass, Tomintoul, Ballindaloch  
 1902 Grant, John A., Pitglassie, Duftown  
 1910 Grant, William, Arradoul, Buckie  
 1874 Green, Robert, Ruthrie, Aberlour  
 1908 Gregor, Provost Robert, Cullen  
 1899 Greig, John, South Sandlaw, Alvah, Banff  
 1899 Gunn, Alexander J., Kilnhillock, Cullen  
 1907 Henry, James, Brae, Cornhill, Banffshire  
 1910 Hepburn, John, Delchirach, Ballindaloch  
 1876 Inskon, Thomas F., Kinnermony, Craigellachie  
 1881 Innes, Sir J., of Balveny and Edingight, Barts, Keith  
 1903 Kynoch, John, W. Isla Bank, Keith  
 1902 Landale, Napier, Aberlour, Banffshire  
 1896 Law, Charles E., Holi Farm, Keith  
 1885 Longmore, Leith E., Balvade, Banff  
 1897 Lumsden, General Sir Peter, G.C.B., of Buchrumb, Duftown  
 1911 M'Combie, George, Auchinhamper, Inverkeithing  
 1902 MacComachie, F. G., Ardoch, Deskford, Cullen  
 1888 M'Donald, Alexander (M'Donald Bros.), Portsoy  
 1900 Macdonald, John, Byres, Fochabers  
 1896 Macduff, John, Maryhill, Auchlunkart, Keith  
 1901 M'Glochrist, James, Home Farm, Ballindaloch  
 1909 Machattie, George, Cattle Dealer, Keith  
 1891 MacIntosh, William, Fife Estates Office, Banff  
 1905 Mackay, George, Mains of Tannaehy, Port Gordon  
 1909 Mackenzie, Peter, Castletown, Glenlivet  
 1908 M'Lennan, Wm., Bogton, Portsoy  
 1908 M'Lean, Wm., Rathven Mills, Buckie  
 1902 Macpherson, James, Auchmillie, Portsoy  
 1876 Macpherson, J., Mulben, Keith  
 1909 M'William, James, Lower Deuchries, Alvah, Banff  
 1898 Marsden, Wm. James, V.S., Castle St., Banff  
 1902 Massie, James, Milltack, King Edward  
 1880 Menzies, W. G. Steuart, Alkenway, Craigellachie  
 1905 Milne, Lewis, Rannas, Buckie



## Admitted

- 1903 Henderson, Geo. Thomson, Templewood, Brechin  
 1905 Henderson, Robert C., Kincraig, Brechin  
 1902 Howie, Thomas, Beechwood, Arbroath  
 1896 Hynd, James, jun., Hodgseton, Inverkeilor, Arbroath  
 1906 Ireland, David, Easter Balmuir, Arbroath  
 1894 Ireland, Thomas, Brewer, Brechin  
 1894 Jarron, James Alexander, Arbikie, Inverkeilor, Arbroath  
 1896 Johnstone, James D., Orange Lane, Montrose—*Free Life Member*  
 1894 Johnstone, John, Bainabreck, Brechin  
 1906 Kirkland, Thomas B., The Hollis, Broughty Ferry  
 1890 Kydd, James, Serynie, Carnoustie  
 1909 Low, David, jun., Redhall, Inchbarr, Brechin  
 1902 Low, William, of Balmakewan, Marykirk, Montrose  
 1895 Lyall, Alexander, of Gardyne Castle, Montrose  
 1909 Lyall, Herbert, Old Montrose, Montrose  
 1903 Lyon, William, Leithfield House, Fordoun  
 1881 McCorquodale, D. A., Banker, Carnoustie  
 1869 McCulloch, R. C., Myerton Villa, Carnoustie  
 1904 Macdonald, Reginald L., Windmill House, Arbroath  
 1904 Macdonald, W. K., Town Clerk, Arbroath  
 1897 McKinnon, James, Bramble Bank, Broughty Ferry  
 1901 McLaren, Laurence, M.R.C.V.S., Brechin  
 1905 McNab, John B., Keithock, Brechin  
 1900 McNiven, Duncan, Willanyards, Brechin  
 1898 Middleton, George, Parkconon, Colliston, Arbroath  
 1894 Milne, George Gardyne, Montrose  
 1902 Milne, John, Farmer Mart, Brechin  
 1905 Milne, J. A., of Chapleton of Menmuir, Inchbrae, Brechin  
 1902 Milne, Wm. M., North Mains, Turin, Forfar  
 1879 Mitchell, James, Merchant, Montrose  
 1898 Morgan, D., Douglasleigh, Carnoustie  
 1905 Morgan, J. W., Grange of Conon, Arbroath  
 1905 Moyes, W. C., Kennmure, Inverkeilor  
 1894 Myles, John Blythe, of Balglassie, Brechin  
 1909 Nicol, William, jun., West Braikie, Inverkeilor  
 1894 Nicoll, Wm., Hilton of Fearn, Brechin  
 1898 Nicoll, William, jun., The Cross, Carnoustie  
 1905 Officer, John, Windyedge, Brechin  
 1890 Ogilvie, James Swan, Brackenbrae, Broughty Ferry  
 1890 Ouchterlony, Lt.-Col. T. H., The Guynd, Arbroath  
 1900 Pattullo, J. H., Pitskelly, Carnoustie  
 1884 Petrie, David D., 12 Ann Street, Arbroath  
 1900 Reid, Wm. J., Fordhouse of Dun, Montrose  
 1882 Risk, James, Pittendreich, Brechin  
 1882 Robertson, James, Panmure, Carnoustie  
 1895 Robertson, John, Panmure Estates Office, Carnoustie  
 1884 Rodger, Geo., Waulkmills, Inverkeilor, Arbroath  
 1882 Rodger, Robt., Mains of Dun, Montrose  
 1906 Salmond, Charles S., Legaston, Arbroath  
 1895 Samson, Jas., Balmillo, Montrose  
 1905 Scott, Alex., Huntlyhill, Brechin  
 1888 Scott, Jas. Addison, Newton of Arbriol, Arbroath

## Admitted

- 1908 Scott, W. R. Addison, Newton of Arbriol, Arbroath  
 1902 Semple, James, Old Downie, Carnoustie  
 1902 Semple, John L., Haughs of Kinnaird, Brechin  
 1904 Shiell, David Guthrie, Oatlea, Brechin  
 1885 Shiell, John, Solicitor, Brechin  
 1895 Sim, John, Brae of Pert, Brechin  
 1896 Smart, Arthur G., Dalbog, Edzell  
 1889 Smart, J. B., Grange Cottage, Monifieth  
 1900 Soutar, Jn. W., jun., Cornescorn, Edzell  
 1895† Squitman, The Earl of, Kinnaird Castle, Brechin  
 1900 Spalding, William, of Balconnel, Brechin  
 1910 Spence, Henry E., Glenskennock, Montrose  
 1880 Stansfeld, Capt. John, Dunnald, Montrose  
 1902 Stephen, Edward F., Helenslea, Broughty Ferry  
 1895 Steven, William, Craigmill, Carnoustie  
 1904 Stewart, David, Chellwood, Monifieth  
 1900 Stewart, Gordon, East Mains, Keithock, Brechin  
 1894 Swan, William C., Inverpeffer, Carnoustie  
 1890 Taylor, Robt., Pitlivie, Carlogie House, Carnoustie  
 1891 Thom, James H., Westerton of Stracathro, Brechin  
 1906 Tindal, Robt. P. S., East Mains of Rossie, Montrose  
 1896 Todd, James, Maison-Dieu, Brechin  
 1894 Watson, William, Boddin, Montrose  
 1896 Wilson, James A., Arnhall, Edzell  
 1874 Wood, Chris., St Ann's, Brechin

## KINCARDINE.

- 1876 Adam, William, Bush, Banchory-Ternan  
 1901 Alexander, James, Bents, Laurencekirk  
 1902 Alexander, Robt., of Redmyre, Fordoun  
 1906 Anderson, David, Loirston, Nigg  
 1908 Anderson, James, Pitcary, Bervie  
 1894 Annandale, A. B., Bank Agent, Stonehaven  
 1881† Baird, Sir Alex., of Urie, Bart., Stonehaven  
 1894 Baird, Henry Robt., of Durris, Aberdeen  
 1892 Barrie, James, Butcher, Stonehaven  
 1902 Barron, Robt., Mains of Mondynes, Fordoun  
 1898 Brown, George T., East Cairnbeig, Fordoun  
 1878 Brown, W., Pitnamoon, Laurencekirk  
 1910 Brown, William, M.R.C.V.S., Outerloch, Banchory  
 1894 Calder, Jas., Midtown of Barras, Stonehaven  
 1894 Carr, Wm., East Mains of Barras, Stonehaven  
 1888 Clinton, Lord, Fettercairn House, Fettercairn  
 1884 Cooper, John, Ley, Banchory-Ternan  
 1899 Crichton, C. M., Kintore Estates Office, Laurencekirk  
 1864 Davidson, J., Harestone, Banchory  
 1882 Dewar, Alexander, Factor, Fasque, Fettercairn  
 1876 Dickson, Patrick, Laurencekirk  
 1896 Duff, Robert W., of Fetteresso, Stonehaven  
 1902 Duguid, John, Darnford, Durris  
 1906 Falconer, William G., Cairnton, Fordoun  
 1902 Findlay, James, Craighead, Portlethen

Admitted

- 1905 Forbes, Alex., Fetteresso Estates Office, Stonehaven  
 1907 Fortescue, Miss Jessie T. I., Mondynes, Fordoun  
 1876 GLADSTONE, Sir J. R., of Fasque, Bart., Fettercairn  
 1869 Grant, Capt. Frederick G. Forsyth, of Ecclesgreig, Montrose  
 1873 Greig, James Booth, Laurencekirk  
 1884 Greig, William, Ashentilly, Durriss, Aberdeen  
 1884 Hart, John, Cowie House, Stonehaven  
 1878 Hay, J. T., of Blackhall Castle, Banchory  
 1902 Henderson, Alex., Burnside, Newhall, Muchalls  
 1902 Henry, William, Hatton, Marykirk  
 1909 Hird, David, Sauchenshaw, Netherley, Stonehaven  
 1896 Hird, Samuel, Sauchenshaw, Muchalls, Stonehaven  
 1888 Innes, Rev. W. D., of Cowie, Stonehaven  
 1908 Ireland, Edwin, Ramsay Arms Hotel, Fettercairn  
 1908 Japp, Frank, Newton, Laurencekirk  
 1908 Johnston, Wm., Fernyflatt, Bervie  
 1876 Kinross, J., Coldstream, Laurencekirk  
 1910 Lindsay, William, Drumsleed, Fordoun  
 1901 Macdonald, J., Fettercairn, Laurencekirk  
 1896 M'Inroy, Col. Charles, C.B., of The Burn, Edzell  
 1908 Melvin, William M., Bridge Mill, Laurencekirk  
 1909 Milne, Alex., Newtonhill Farm, Newtonhill, Stonehaven  
 1900 Milne, Alex., Urie Estates Office, Stonehaven  
 1902 Milne, George, Mains of Barras, Kinniff, Stonehaven  
 1894 Milne, Jas., Balnagubs, Netherley, Muchalls

Admitted

- 1894 Milne, James, jun., Easter Cairnhill, Fetteresso, Muchalls  
 1905 Milne, Robert, Inch of Arnhall, Edzell  
 1894 Murray, A. B., Auction Mart, Stonehaven  
 1902 Murray, Thomas A., West Mondynes, Fordoun  
 1900 Nicolson, Arthur B., of Glenbervie, Fordoun  
 1855 Paul, William, Stranathro Cottage, Muchalls  
 1910 Paul, William Alexander, Royal Hotel, Laurencekirk  
 1885 Philip, Forbes, Road Surveyor, Ellon  
 1878 Porteous, D. S., of Lauriston, Montrose  
 1906 Preddy, Chas. A., Threipland, Drumlithie, Fordoun  
 1876 Reid, George, Pittdelphin, Strachan, Banchory  
 1900 Reid, James, Nether Tulloch, Laurencekirk  
 1885 Ross, Alexander, Mains of Newhall, Fetteresso, Muchalls  
 1899 Scott, John, Albyn Cottage, Laurencekirk  
 1882 Shand, T. L. R., of Fawysde, Bervie  
 1894 Shaw, Charles, Maidenfold, Maryculter, Aberdeen  
 1868 Sinclair, D., of North Loirston, Aberdeen  
 1873 Smith, James, Pittengardner, Fordoun  
 1889 Stawart, Sir David, of Banchory-Devenick, Kincardineshire  
 1898 Stewart, George, Haulkerton Mains, Laurencekirk  
 1868† Walker, G. J., Mains, Portlethen, Aberdeen  
 1898 Walker, John Wilson, Hillside House, Portlethen, Aberdeen  
 1892 Walker, Robt. W., Portlethen, Aberdeen  
 1902 Walker, W. J. B., Nethermill House, Fettercairn  
 1896 Young, John, Easter Tlibouries, Maryculter

NUMBER OF MEMBERS, 807.



## 6.—DUMFRIES DISTRICT.

## EMBRACING THE

## COUNTIES OF DUMFRIES, KIRKCUDBRIGHT, AND WIGTOWN.

## DUMFRIES.

Admitted  
 1895 Adamson, Robert, W.S., Irish Street, Dumfries  
 1879 Aitken, John M., Norwood, Lockerbie—  
*Free Life Member*  
 1910 Allan, Hugh H., Beuchan, Thornhill  
 1878 Anderson, James, Stockbridge, Ecclefechan  
 1878 Anderson, John, Hillside, Moffat  
 1898 Anderson, Jonathan, Eaglesfield, Ecclefechan  
 1911 Anderson, T. B., High Street, Lockerbie  
 1904 Armstrong, James, Shaw, of Tundergarth, Lockerbie  
 1904 Annandale, Wm. Edwin, Hopsrigg, Langholm  
 1906 Armstrong, Walter John, Park, Annan  
 1907 Armstrong, W., Green, Annan  
 1887 Austin, James J. M., of Dalmakerran, Thornhill  
 1911 Austin, Robert, Victoria Road, Annan  
 1888 Baird, Alexander, Hoddometown, Ecclefechan  
 1885 Barber, William, Terenure, Moniaive  
 1908 Barbour, John, Bengall, Lockerbie  
 1906 Bartholomew, James, Kinnelhead, Beattock  
 1910 Bayne-Jardine, T. E., Keir Manse, Thornhill  
 1895 Beattie, John, Baurch, Rigg, S.O., Carlisle  
 1898 Beattie, Lewis, Mossknowe, Canonbie  
 1908 Beattie, Thos., Dumfelling, Langholm  
 1897 Beattie, Thomas, Torduff, Annan  
 1886 Bell, George, Crossbankhead, Ecclefechan  
 1908 Bell, James, Brydekirk Mains, Annan  
 1901 Bell, John, Dornock House, Annan  
 1908 Bell, John, Torbeckhill, Ecclefechan  
 1906 Bell, John Mackintosh, of Roundstonefoot, Moffat (22 Rutland Street, Edinburgh)  
 1910 Bell, Thomas, Fairholm, Lockerbie  
 1878 Berwick, John, Burn, Thornhill  
 1895 Blackley, John, Marchhill, Dumfries  
 1878 Borland, John, Auchencra, Closeburn, Thornhill  
 1908 Borthwick, A. Hay, Billholm, Langholm  
 1898 Brand, David, Hangingshaw, Lockerbie  
 1895 Broatch, Geo., Justinless, Annan  
 1910 Broatch, Robert, Thwaite, Ruthwell  
 1890 Brodie, W. A. G., Crichton Asylum, Dumfries  
 1910 Brook, Charles, of Kinmount, Annan  
 1895 Brook, E. J., of Hoddem, Hoddem Castle, Ecclefechan  
 1902 Brown, David, Steppford, Auldirth  
 1886 Brown, James, Burnside, Holywood, Dumfries

Admitted  
 1908 Brown, James, Jaarbruck Lodge, Thornhill  
 1910 Brown, James, Shillahill, Lockerbie  
 1902 Brown, John, Threecrofts, Dumfries  
 1899 Brown, Joseph, Holystone, Thornhill  
 1910 Brown, Ralph, Ladyland, Preston Mill, Dumfries  
 1910 Brown, Robert, Blairshinnock, Dumfries  
 1886 Brown, Stephen, Boreland, Lockerbie  
 1877 Brown, T. M., Closeburn Castle, Thornhill  
 1910 Brown, William, Howes Farm, Annan  
 1911 Brown, William, Roberthill, Lockerbie  
 1898 Buchanan-Jardine, Sir Robert W., of Castlemilk, Bart., Lockerbie  
 1895 Burnie, William, Penlaw, Lockerbie  
 1904 Butter, Peter, Atholl Bank, Noblehill, Dumfries  
 1908 Byers, James, Gannembie Mains, Lockerbie  
 1910 Byres, James R., Kirkmichael Grove, Lockerbie  
 1906 Cameron, James, Lincluden Mains, Dumfries  
 1910 Campbell, David W., Breckonhill, Lockerbie  
 1910 Campbell, Robert, Castlemilk Home Farm, Lockerbie  
 1910 Carlyle, James, Dunnabie, Ecclefechan  
 1908 Carlyle, Thos. R., Waterbeck, Ecclefechan  
 1898 Carlyle, William Lee, Templehill, Ecclefechan  
 1886 Carmont, James, British Linen Company Bank, Dumfries  
 1896 Carruthers, F. J., of Dormont, Lockerbie  
 1895 Carruthers, William R., Steurlieshill, Wamphray, Beattock  
 1906 Chalmers, John, Charlesfield, Annan  
 1908 Chapman, Andrew, Dinwoodie Lodge, Lockerbie  
 1876 Charlton, John, Corn Merchant, Dumfries  
 1908 Charlton, James, Loreburn Park, Dumfries  
 1895 Common, John, Cross Dykes, Lockerbie  
 1878 Cormack, John F., Solicitor, Lockerbie  
 1908 Cowan, Ronald L., Hallguards, Ecclefechan  
 1897 Crabbe, Major, Duncow, Dumfries  
 1899 Craig, Edward J., Waterhead, Dryfe, Lockerbie  
 1910 Crawford, Hugh, Wintersheugh, Annan  
 1881 Crawford, Jas., Flossend, Gretna  
 1892 Crawford, Peter, Dargavel, Dumfries  
 1910 Crawford, Robert, West Gallaberry, Dumfries  
 1895 Crawford, William, Broadchapel, Lochmaben  
 1910 Crawford, William, Girthhead, Lockerbie



## Admitted

- 1878 Lindsay, James, Whitecastles, Lockerbie  
 1895 Lindsay, James, V.S., Whitesands, Dumfries  
 1895 Lindsay, William, West Roucan, Dumfries  
 1910 Little, James, jun., Craig, Westerkirk, Langholm  
 1878 Little, James Church, Burnfoot, Langholm  
 1888 Little, Murray, Solicitor, Annan  
 1895 Little, William, Gladenholm, Amlisfield, R.S.O.  
 1895 Lorimer, William, Raeleugh, Moffat  
 1895 Lyon, J. Stewart, of Kirkmichael, Dumfries  
 1910 M'Alister, A. W., Seedsman, Dumfries  
 1910 Macara, Graham F., Grain Merchant, Moniaive  
 1887 M'Call, Alexander, Castlemains, Lochmaben  
 1899 M'Call, Thomas, Johnstone Place, Lockerbie  
 1895 M'Call, William, Broomfield, Glencairn, Moniaive  
 1907 M'Clure, James, Clydesdale Bank, Lockerbie  
 1911 M'Connell, James Irving, Nunfield, Dumfries  
 1887 Macdonald, Alexander, Grain Merchant, Lockerbie  
 1907 M'Donald, James, High Street, Annan  
 1895 Macdonald, J. C. R., W.S., Dumfries  
 1898 Macdonald, Major William Bell, of Rammerscales, Lockerbie  
 1878 Macfarlan, George, Closeburn Mains, Thornhill  
 1908 M'Gleason, Miles M., Estate Office, Dabton, Thornhill  
 1900 MacGregor, Peter, Factor, Springkell, Ecclefechan  
 1886 M'Intosh, A. J., V.S., Dumfries  
 1908 M'Intosh, Duncan, West Mains, Dumfries  
 1905 M'Intosh, John S., 8 Seafield Road, Dumfries  
 1888 M'Jarrow, David, Solicitor, Lockerbie  
 1894 M'Jarrow, Jas. Ewart, Fairfield, Lockerbie  
 1910 M'Kerrow, William, Broomhill, Lochmaben  
 1895 Mackie, Andrew, Aitchisons Bank, Gretna  
 1895 Mackie, George, Dornock Mains, Annan  
 1900 Mackie, John, Dalzibbie, Dumfries  
 1895 Mackie, William, Carlyle House, Ecclefechan  
 1910 M'Kie, William Taylor, Dabton, Thornhill  
 1895 M'Millan, John J., Glencrosh, Moniaive  
 1895 M'Millan, Robert, Woodies, Moniaive  
 1895 M'Millan, Thomas, Glencrosh, Moniaive  
 1895 M'Murray, Alex., Catherinefield, Dumfries  
 1910 M'Murtrie, William, Gillenbie, Lockerbie  
 1895 Macrae, D. M., Stenhouse, Thornhill  
 1890 Martin, J. O., of Notherwood, Dumfries  
 1880 Martin, William, Dardarroch, Dumfries  
 —Free Life Member  
 1880 Maxwell, Charles H., of Dalruscan, Dumfries  
 1895 Maxwell, M'Kill, Coshogle, Thornhill  
 1910 Maxwell, Maxwell Hyslop, of The Grove, Dumfries  
 1900 Maxwell, Wellwood Hyslop, Stollston House, Dumfries  
 1911 Meisegles, Ary, Longwood, Langholm  
 1861 Mercer, John, Whiteside, Kirkgunzeon, by Dumfries

## Admitted

- 1910 Millar, John E., Enzieholm, Langholm  
 1896 Millar, William J., Engineer, Annan  
 1910 Milligan, Fergus J. D., Merkland, Auldgarth  
 1895 Milligan, George F., Burnmouth, Thornhill  
 1870 Milligan, John, Auldgrith, Dumfries  
 1895 Milligan, John, Crairie Park, Durrisdeer, Dumfries  
 1904 Milligan, Samuel, M.A., B.Sc., Hayfield, Thornhill  
 1886 Milne, Thomas, Grain Merchant, Lockerbie  
 1908 Mitchell, H. N., Kirklands, Kirkcounnel  
 1895 Moffat, Francis, Craigbeck, Moffat  
 1898 Moffat, James, Gateside, Sanquhar  
 1888 Moffat, William, Garwald, Langholm  
 1895 Moffat, W. Kennedy, of Auchencheyne, Moniaive  
 1910 Moffat, W. M., Craigbeck, Moffat  
 1908 Morton, Hugh, Dalnakethar, Lockerbie  
 1910 Morton, John, Lamontie, Lockerbie  
 1910 Motion, William, Parkend, Lockerbie  
 1910 Muirhead, Douglas, Hoddam Castle Estate Office, Ecclefechan  
 1878 Murray, Allan, Castlemilk Mill, Lockerbie  
 1895 Murray, John, Olenghside, Lockerbie  
 1896 Murray, William, British Linen Co. Bank, Sanquhar  
 1898 Murray, William, Kirkland, Closeburn  
 1900 Murray, William, of Murraythwaite, Ecclefechan  
 1879 Murray, W. G. G., Hillside, Lockerbie  
 1910 Nicol, Robert P., Newfield, Ecclefechan  
 1910 Oldfield, Wilfrid, Oakland House, Noble Hill, Dumfries  
 1895 Osborne, James, Dinning, Closeburn, Dumfries  
 1890 Osborne, Robert, Morton Mains, Thornhill  
 1904 Oswald, Major Julian, Kindar Lodge, New Abbey, Dumfries  
 1910 Paterson, J. Jardine, of Brocklehurst, Ruthwell  
 1908 Paterson, James J., Terrona, Langholm  
 1905 Paterson, James S., Quhytewoolen, Lockerbie  
 1885 Paterson, John S., Craigdarroch, Sanquhar  
 1908 Paterson, Robert, Holms, Beattock  
 1911 Paterson, Robert, Lochside, Terregles, Dumfries  
 1900 Paterson, Robert Jardine, of Balgray, Lockerbie  
 1910 Paterson, William, Holmhead, Mouswald, Ruthwell  
 1885 Paterson, Wm., E. Craigdarroch, Sanquhar  
 1884 Pearson, A. G., of Luca, Annan  
 1910 Penman, Andrew O., Motor Builder, Dumfries  
 1908 Pickering, R. Y., of Con Heath, Dumfries  
 1884 Primrose, John, Solicitor, Dumfries  
 1895 Primrose, Robert, Kirkbog, Thornhill  
 1911 Rae, George, Robgill Mains, Ecclefechan  
 1911 Rae, Irving, Burnhead Lime Works, Ecclefechan  
 1892 Raiston, Charles W., Dabton, Thornhill  
 1895 Rankin, John S., Waulkmill, Thornhill  
 1899 Reid, Charles W., King's Arms Hotel, Lockerbie  
 1895 Reid, James S., Westwood, Dumfries  
 1895 Richardson, James, Harbush, Tinwald  
 1910 Richardson, Robt., Daltonhook, Lockerbie

Admitted

- 1910 Richardson, Walter, Haregills, Ecclefechan  
 1878 Richardson, William, Milnfield, Annan  
 1884 Richardson, Wm., Hardbush, Amisfield, R.S.O.  
 1895 Richardson, William, Douglas Lodge, Moffat  
 1911 Riddick, William, Templand, Kirkmahoe  
 1885 Ritchie, William, Hope Lodge, Moffat  
 1895 Robinson, R., Steam Mills, Annan  
 1898 Robson, John, County Buildings, Dumfries  
 1884 Roddick, Frank, Trailltown, Ecclefechan  
 1899 Roedemer, Charles Stewart, High Townhead, Dalswinton, Kirkmahoe  
 1908 Rogerson, John K., Eldin, Moffat Road, Dumfries  
 1895 Rogerson, Robert, Seedsman, Dumfries  
 1908 Russell, George, National Bank of Scotland, Dumfries  
 1895 Rutherford, John, M.P., Summerhill, Annan  
 1884 Sandilands, Robert, Corsebank, Sanquhar  
 1908 Scott, John, Broom, Lockerbie  
 1878 Scott, Robert A., Fairfield, Dumfries  
 1898 Scott, William Black, Alison's Bank, Gretna, N.B.  
 1908 Scrimgeour, James, Mainholm, Hoddum, Ecclefechan  
 1910 Slack, John, Tanlaw Hill, Langholm  
 1910 Sloan, Alexander, Georgefield, Langholm  
 1895 Sloan, William, Shawsmuir, Closeburn, Thornhill  
 1910 Smith, Bertram, of Broomlands, Beatock  
 1895 Smith, Matthew, Cowhill, Holywood, Dumfriesshire  
 1870 Smith, Thomas, Twiggles, Lockerbie  
 1873 Smith, Thos. K., Willow Grove, Dornock, Dumfriesshire  
 1870 Sproat, Robert, Cardoness Street, Dumfries  
 1895 Steel, Arthur Jackson, of Kirkwood, Lockerbie  
 1895 Steel, James, 24 Catherine Street, Dumfries  
 1910 Steel, William, Shortrig, Ecclefechan  
 1907 Steele, James, Ladyfield, Dumfries  
 1886 Stobo, James, Halliday Hill, Auldirth  
 1911 Swan, Robert, of Newtonrigg, Holywood, Dumfries  
 1908 Symington, Arch., of Allanton, Auldirth  
 1886 Symons, John, Solicitor, Dumfries  
 1910 Thomson, J., Auctioneer, Annan  
 1879 Tod, William, Halleaths Farm, Lochmaben  
 1908 Tweedie, Major-General W., of Lettrick, Dumfries  
 1902 Urquhart, Joseph, Eaglesfield, Ecclefechan  
 1904 Veitch, George Douglas, of Ellick, Sanquhar  
 1898 Veitch, W. H., Park House, Ecclefechan  
 1894 Vivers, William, Dornocktown, Annan  
 1910 Wadd, E. W. F., Dalawoodie, Dumfries  
 1895 Walker, Captain Laurie, of Crawfordton, Thornhill  
 1911 Wallace, James, The Hope, Moffat  
 1886 Wallace, James R. W., Abernethy, Thornhill  
 1889 Wallace, John William, Ford, Thornhill  
 1885 Wallace, S. Williamson, Kelton, Dumfries  
 1907 Weir, James, Brick House, New Abbey Road, Dumfries

Admitted

- 1906 Weir, James, Over Courance, Lockerbie  
 1899 Welsh, Tom, Ericstane, Moffat  
 1888 Whitelaw, James W., Solicitor, Dumfries  
 1895 Wightman, James, South Mains, Sanquhar  
 1896 Will, George, Orichton Royal Institution, Dumfries  
 1895 Williamson, Ninian Alex., of Garzield, Kirkmahoe, Dumfries  
 1908 Williamson, Thomas, Drumbuie, Sanquhar  
 1895 Wilson, Alexander, Stakeford, Dumfries  
 1900 Wilson, James, Tundergarth Mains, Lockerbie  
 1878 Wilson, John, Tinwaldshaws, Tinwald, Dumfries  
 1895 Wilson, John, Boghead, Dumfries  
 1878 Wilson, P. M'C., Muirside, Holywood, Dumfries  
 1877 Wright, Thos., Howgillside, Ecclefechan  
 1903 Wyllie, James, Bankhead, Lochmaben  
 1895 Wyllie, James, Grain Merchant, Elmbank, Dumfries  
 1864 Yorstoun, M. C., of Tinwald, East Tinwald, Lochmaben  
 1895 Young, Homer, Redhills, Dumfries  
 1904 Young, Robert, Hardgrave, Ruthwell, R.S.O.  
 1910 YOUNGER, Sir William, Bart., Anchen Castle, Moffat

KIRKCUDBRIGHT.

- 1895 Allan, Robert, Howell, Kirkcudbright  
 1870 Anderson, Robert, Alleyford, Kirkcudbright  
 1894 Armitage, Arthur Calrow, of Kirrough-tree, Newton-Stewart  
 1904 Armstrong, Robert, Littleton, Gatehouse  
 1889 Barbour, Wm., Culpark, Castle-Douglas  
 1884 Barrowman, John H., Corrahill, Kirkcudbright  
 1907 Biggar, Walter, Grange Farm, Dalbeattie  
 1886 Biggar, Wm., Chapelton, Dalbeattie  
 1908 Bone, James, Lochvale, Castle-Douglas  
 1908 Brown, J. H. Balfour, Goldieles, Dumfries  
 1908 Brown, James, of Knockbrex, Kirkcudbright (Longfield, Heaton Mersey, Manchester)  
 1910 Brown, John J., Hermitage, Dalbeattie  
 1870 Brown, Joseph, Hermitage, Dalbeattie  
 1895 Brown, William, Balannan, Ringford, N.B.  
 1908 Brown, William, of Netherlaw, Kirkcudbright  
 1910 Burns, A. Morris, The Lake, Kirkcudbright  
 1910 Caird, Captain Alister J. Henryson, yr. of Cassencary, Creetown  
 1892 Caird, James A., of Cassencary, Creetown  
 1895 Callender, Gavin, Palmerston, Dalbeattie  
 1885 Campbell, Robert J., Cull, Cassencary, Dalbeattie  
 1908 Campbell, Wm. George, Dalbeattie, Dalbeattie  
 1879 Cannon, James, Dalbeattie, Dalbeattie  
 1877 Cannon, John, Dalbeattie, Dalbeattie  
 1895 Cannon, John, Dalbeattie, Dalbeattie  
 1874 Chambers, Arch., of Dalbeattie, Dalbeattie  
 1895 Chalmers, William, Dalbeattie, Dalbeattie  
 1890 Chalmers, William, Dalbeattie, Dalbeattie

## Admitted

- 1903 Coats, W. A., of Dalskairth, Dumfries;  
 1903 Cochrane, Captain William, Torrorrie,  
 Preston Mill, Kirkbean, Dumfries  
 1903 Cochrane, William, jun., Torrorrie,  
 Preston Mill, Kirkbean, Dumfries  
 1896 Copland, Thomas, Seaside, Torregles,  
 Dumfries  
 1899 Corrie, Thos., Southpark, Kirkcudbright  
 1903 Craigie, John, Farmer, Creetown  
 1894 Crawford, Hugh W. B., Chapinanton,  
 Castle-Douglas  
 1866 Cunningham, R. D. B., of Hensol, New  
 Galloway Station  
 1902 Cunningham, Henry, Whitecain, Dal-  
 beattie  
 1889 Cunningham, John, Tarbreoch, Dal-  
 beattie  
 1879 Currie, John, Kirkcreech, Kirkcudbright  
 1899 Dempster, John, jun., Herriesdale, Dal-  
 beattie  
 1895 Douglas, John, Barstibly, Castle-  
 Douglas  
 1895 Douglas, Thomas, Lochdougan, Castle-  
 Douglas  
 1878 Douglas, Wm. D. R., of Orchardton,  
 Castle-Douglas  
 1903 Dudgeon, Cecil Randolph, Cargen Holm,  
 Dumfries  
 1903 Dudgeon, Robt. Maxwell, 79th Cameron  
 Highlanders, Cargen, Dumfries  
 1877 Dudgeon, R. F., of Cargen, Dumfries  
 1903 Dunbar, Lieut.-Colonel Robert Lennox  
 Nugent, of Machermore, Newton-  
 Stewart  
 1889 Duncan, James, East Glenarm, Crocket-  
 ford, Dumfries  
 1906 Dunlop, George, Craignaploch, Kirk-  
 cudbright  
 1884 Dunlop, Captain H. L. Murray, of Cor-  
 sock, Dalbeattie  
 1903 Fairhurst, Thomas, of Borness, Kirkcud-  
 bright (Kilhey Court, Worthington,  
 near Wigan)  
 1889 Ferguson, Robert W., of Kilquhamity,  
 Dalbeattie  
 1895 Fraser, Hugh, Arkland, Dalbeattie  
 1898 Galbraith, Charles E., Torregles, Dum-  
 fries  
 1872 Galbraith, Wm. W., Nunwood, Dumfries  
 1904 Gibson, John, of Priestlands, Troqueer,  
 Dumfries  
 1880 Gibson, J. T., Carsethorn, Kirkbean  
 1882 Gillespie, Denholm, Park Hall, Maxwell-  
 town, Dumfries  
 1910 Gillespie, Douglas, Factor, Castle-  
 Douglas  
 1888 Gillespie, William, Solicitor, Castle-  
 Douglas  
 1886 Gilmour, W. P., Balmangan, Kirkcud-  
 bright  
 1873 Glendinning, G. P., Barlochan, Dal-  
 beattie  
 1885 Gordon, Edward, Dunlop, Castle-Douglas  
 1877 Gordon, James, Castle-Douglas  
 1903 Gordon, Col. Wm., of Threave, Castle-  
 Douglas  
 1904 Graham, John, Kirkconnell, Ringford  
 1895 Graham, Robert, Auchengassel, Twyn-  
 holm  
 1873 Gray, Adam, Ingleston of Borgue, Kirk-  
 cudbright  
 1903 Hacking, J. H., of Auchengibbert,  
 Crocksford, Dalbeattie  
 1896 Halliday, William, Halket Leaths, Castle-  
 Douglas  
 1903 Hannay, Colonel Wm. Rainsford, of  
 Kirkdale, Creetown  
 1876 Hayman, John, Queenshill, Ringford  
 1911 Henry, Robert W., Kirkbride, Cree-  
 town

## Admitted

- 1883 Herries, A. Y., of Spottes (16 Heriot  
 Row, Edinburgh), Dalbeattie  
 1895 Herries, William D. Y., yr. of Spottes,  
 Dalbeattie  
 1878 Hood, D. A., Balgreddan, Kirkcud-  
 bright  
 1884 Hood, William, Kirkcudbright  
 1910 Hope, Captain Charles D., Senwick  
 House, Kirkcudbright  
 1886 Hope, John, Captain R.N., St Mary's  
 Isle, Kirkcudbright  
 1899 Hume, A., Auchendolly, Dalbeattie  
 1880 Hutchison, Graham, of Balmaghie, Castle-  
 Douglas  
 1904 Hutchison, Jas. Laurie M'Kie, Hillow-  
 ton, Castle-Douglas  
 1870 Hyslop, Andrew, Auchencroch, Dal-  
 beattie  
 1886 Jameson, John, Jameston House, Cars-  
 phairn  
 1878 Kennedy, J. M., of Knocknalling, Dalry,  
 Galloway  
 1870 Kennedy, Wm., Marbrack, Carsphairn  
 1897 Keswick, James J., of Mable, Dumfries  
 1895 Kirkpatrick, Thomas, Trostan, Moniaive  
 1878 Kirwan, L. M., Collin, Auchencalm  
 1883 Laidlay, R. W., Barwhinnock, Twyn-  
 holm  
 1895 Lusk, Matthew C., Airleland, Castle-  
 Douglas  
 1906 M'Adam, Jas., Craigley, Castle-Douglas  
 1911 MacAlister, Neil H., V.S., 7 Church  
 Place, Kirkcudbright  
 1878 M'Conchie, John, Carsewillock, Cree-  
 town  
 1878 M'Cormick, John, Lochenkit, Corsock,  
 Dalbeattie  
 1895 M'Dowall, John, of Girdstingwood, Kirk-  
 cudbright  
 1893 M'Geoch, Thomas, Barncaughlaw, New-  
 ton-Stewart  
 1909 M'Gill, David, Farmer, Castle-Douglas  
 1904 M'Kerrow, Chas. Samson, Boreland of  
 Southwick, Dumfries  
 1876 M'Kerrow, M. S., Boreland of South-  
 wick, Dumfries  
 1878 M'Kie, John, of Bargaly, Castle-Douglas  
 1878 M'Larin, Dugald, Dalbeattie  
 1910 M'Myn, Joseph G., Kirkhouse, Kirk-  
 bean, Dumfries  
 1896 M'Nae, Robt., V.S., Maxwelltown,  
 Dumfries  
 1895 M'Naught, Robert A., Dalry, Galloway  
 1897 M'Queen, James, of Crofts, Dalbeattie  
 1899 M'Turk, John, Ashley Bank, Castle-  
 Douglas  
 1878 M'Turk, W. A., Barlas, Dalry, Galloway  
 1888 M'William, John, Carantyne Villa, Dal-  
 beattie  
 1877 Matland, David, of Dundrennan, Kirk-  
 cudbright  
 1906 Maxwell, James Todd, Sreel, Castle-  
 Douglas  
 1902 Maxwell, Major J. A. C. Wedderburn,  
 of Glenlair, Dalbeattie  
 1910 Maxwell, Robert, Torregles Banks, Dum-  
 fries  
 1878 Maxwell, W. J., Clyde Villa, Dumfries  
 1903 Maxwell, W. J., yr. of Munches, Dal-  
 beattie  
 1879 Maxwell, Wellwood, of Kirkennan, Dal-  
 beattie  
 1886 Maxwell, Sir W. F., of Cardoness, Bart.,  
 Gatehouse  
 1873+Maxwell, W. J. H., of Munches,  
 Dalbeattie  
 1904 Miller, John Richard, Mid-Kelton,  
 Castle-Douglas  
 1895 Miller, William, Powmillmount, Kirk-  
 bean, Dumfries

Admitted

- 1908 Milligan, J. E., Solicitor, Dalbeattie  
 1878 Mitchell, Andrew, Lochfergus, Kirkcudbright  
 1878 Montgomery, And., of Netherhall, Castle-Douglas  
 1907 Montgomery, Andrew Mitchell, Netherhall, Castle-Douglas  
 1878 Montgomery, William, Banks, Kirkcudbright  
 1877 Muir, William, Craigville, Kirkcudbright  
 1879 Murray, G. R., of Parton, Castle-Douglas  
 1895 Murray, James of Troquhain, Meadowbank, New Galloway  
 1895 Neilson, John, of Mollance, Castle-Douglas  
 1890 Neilson, W. Montgomerie, of Queenshill, Ringford, Kirkcudbrightshire  
 1890 Nicholson, William, Bomble, Kirkcudbright  
 1873 Nivison, Stewart, Lairdlaugh, Dalbeattie  
 1878 Ovens, Walter, Torr House, Castle-Douglas  
 1908 Parker, Hugh, Boreland, Castle-Douglas  
 1886 Paterson, William, Broomlands, Dumfries  
 1899 Philipps, Charles Aldcroft, of Dildawn, Castle-Douglas  
 1895 Phillips, James, Carse, Kirkcudbright  
 1905 Picken, James, Milton, Kirkcudbright  
 1908 Robb, Thomas, Sheep-dealer, Castle-Douglas  
 1902 Saunders, A. W., Dromore, Kirkcudbright  
 1895 Scott, Robert T., Drumhughry, Corsock, Dalbeattie  
 1883 Shennan, John K., Balig, Kirkcudbright  
 1883 Shennan, R., Balig, Kirkcudbright  
 1911 Sinclair, Master of, Milton Park Lodge, Dalry Galloway  
 1908 Sloan, William, Larg Farm, Creetown  
 1882 Smith, Jas., Standingstone, Trynholm, Castle-Douglas  
 1877 Spalding, A. F. M., of Holm, New Galloway  
 1895 Sproat, George G. B., Boreland, Gatehouse, N.B.  
 1878 Sproat, W. T., Borgue House, Kirkcudbright  
 1905 Symington, David, Kirkcarrwell, Dundrennan, Kirkcudbright  
 1886 Timms, H. A., of Slogaria, New Galloway  
 1878 Vetch, Andrew, Girthon Kirk, Gatehouse  
 1895 Vetch, David Y., Low Crouch, Gatehouse, N.B.  
 1907 Wallace, James, Chapelhill, Kirkcudbright  
 1879 Wallace, J., Foundry, Castle-Douglas  
 1886 Wallace, Sir M. G., Terregiestown, Dumfries  
 1879 Wallace, R., Foundry, Castle-Douglas  
 1910 Wallat, David, Crown Hotel, Castle-Douglas  
 1895 Wallat, William, Auction Mart, Castle-Douglas  
 1910 Watson, A. Y., Dinnacon, Castle-Douglas  
 1910 Weeks, F. Wickham, Barkholm House, Creetown  
 1908 Wilkinson, H. Bavis, Creetown Estate Office, Corsock, Dalbeattie  
 1894 Wilkinson, John, The Grange, Kirkcudbright  
 1871 Williamson, Thos., Mansfield, Kirkcudbright  
 1910 Wilson, John M.G., Cairnholy, Creetown

Admitted

- 1908 Witham, Lieut.-Col. J. Maxwell, C.M.G., Kirkconnell, New Abbey, Dumfries  
 1903 Yorburch, R., Barwhillanty, Parton, R.S.O.  
 1903 Young, John, Brockloch, Dalbeattie

WIGTOWN.

- 1898 Adair, John, Springbank, Stranraer  
 1908 Adair, Percy J., Solicitor, Stranraer  
 1889 Adamaon, John, Claremont, Stranraer  
 1898 Agnew, Sir Andrew Noel, of Lochnaw, Bart., Stranraer  
 1903 Agnew, John Lockhart, Balwherrrie, Leawalt  
 1875 Agnew, William, Hillhead, Leswalt, Stranraer  
 1898 Aitken, Alex., Solicitor, Church Street, Stranraer  
 1906 Anderson, James, Inchparks, Stranraer  
 1893 Anderson, John, Drummoral, Isle of Whithorn  
 1878 Anderson, Robert, Balgreggan, Stranraer  
 1903 Barbour, John, Auchneight, Drummors, Stranraer  
 1878 Barbour, Robert, Balgowan, Ardwell, Stranraer  
 1898 Bennoch, James, Stranraer  
 1893 Bennoch, John, Solicitor, Stranraer  
 1895 Black, John, British Linen Co. Bank, Wigtown  
 1878 Black, Thomas, Craigencrosh, Stranraer  
 1895 Brown, Hugh, Craichlaw Mains, Kirkcowan  
 1895 Caldwell, Hugh, Culhorn Parks, Stranraer  
 1909 Campbell, William, Chapel Outen, Whithorn  
 1903 Chalmers, Hugh, Chlenry, Castle-Kennedy  
 1897 Chalmers, John, Freugh, Stoneykirk  
 1893 Christison, James, Barglass, Kirkinner  
 1908 Cochran, Andrew, High Ardwell, Kirkcolum  
 1898 Cochran, George, North Cairn, Kirkcolum  
 1877 Cochran, Robert, Caidons, Stoneykirk  
 1893 Cochran, Robert, Portenacalla, Kirkcolum  
 1885 Cochran, William, Auchentubbert, Sandhead, Stranraer  
 1908 Craig, John, Craigencrosh, Stoneykirk  
 1895 Crawford, Archibald, Broughton Mains, Borthie  
 1895 Crawford, John, Kilbreen, Lochans, Stranraer  
 1910 Dalrymple, Viscount, M.P., Lochinch, Castle Kennedy  
 1895 Douglas, John, High Balyett, Stranraer  
 1903 Drew, James Lawson, Dransadow, Newton-Stewart  
 1911 Edgar, Alex., Chapelheron, Whithorn  
 1893 Findlay, Francis, Drumbredan, Ardwell, Stranraer  
 1908 Findlay, John Steel, Drumbredan, Ardwell, Stranraer  
 1908 Findlay, Wm., Drumbredan, Ardwell, Stranraer  
 1878 Forsyth, John, Balfer Park, Borthie  
 1908 Forsyth, John, Valleyfield, Kirkcolum  
 1902 GALLOWAY, The Earl of, Cumlocan, Newton-Stewart  
 1910 Gillespie, William James, South Barmulloch, Port William  
 1871 Gourlay, M. G., Ardwick, Whithorn  
 1895 Gray, John, Dalry Works, Stranraer  
 1903 Hamilton, Angus, jun., 7 Bridge Street, Stranraer

## Admitted

- 1908 Hamilton, James, Penkiln, Garliestown  
 1908 Hamilton, Captain Wm. M. Fleming, of Craighlaw, Kirkcowan  
 1911 Harper, Dr Thomas, Hanover House, Stranraer  
 1848 HAY, Sir J. C. D., of Park Place, Bart., Glenluce  
 1895 Hewetson, John, Baltersan, Newton-Stewart  
 1895 Hewetson, Robert, Upper Barr, Newton-Stewart  
 1911 Hill, Peter, Baltier, Whithorn  
 1877 Hughan, Peter H., Cults, Whithorn  
 1895 Hunter, Stephen, Whiteleys, Stranraer  
 1888 Hunter, Wm., Garthland Mains, Stranraer  
 1895 Hutchison, John, Drummora, Kirkmaiden  
 1898 Kerr, George, Solicitor, Newton-Stewart  
 1898 Kerr, Hugh, West Galdenoch, Stoneykirk  
 1898 Kerr, Thomas, Banker, Newton-Stewart  
 1910 Laird, Andrew, Torhousekie, Wigtown  
 1908 Lamb, Robert, Gallowhill, Stranraer  
 1888 M'Caig, John, of Belmont, Stranraer  
 1903 M'Camon, John, Barnhill, Kirkcolum  
 1892 M'Clean, James, Auchnac, Stranraer  
 1892 M'Clalland, Andrew, Glenturk, Wigtown  
 1878 M'Clew, David A., Chapel Rossan, Stranraer  
 1897 M'Conchie, William, Mains of Penninghame, Newton-Stewart  
 1898 M'Connell, Jas., Boreland, Whauphill  
 1877 M'Connell, J. A., Chapelheron, Whithorn  
 1878 M'Connell, Thomas M., V.S., Wigtown  
 1884 M'Cracken, Robt., Creamery, Dunragit  
 1898 M'Creath, Thomas, Skaith, Newton-Stewart  
 1870 M'Culloch, John, Cliff House, Port Patrick  
 1899 M'Donall, Andrew Kenneth, of Logan, Stranraer  
 1904 M'Douall, Nigel Douglas, Logan, Stranraer  
 1870 M'Dowall, Andrew, Auchtraleure, Stranraer  
 1911 M'Dowall, Andrew, of Changue, Port William  
 1878 M'Dowall, R., Auchengallie, Port William  
 1911 MacFadyen, Neil Mark, of Shennanton, Kirkcowan  
 1905 M'Fadzean, Henry, Rayburn, Stranraer  
 1895 M'Garra, William, The Cottage, Ardwell, Stranraer  
 1898 M'Gill, Andrew, Barsalloch, Newton-Stewart  
 1898 M'Gill, Andrew, Kildonan, Stoneykirk  
 1895 M'Gill, John, National Bank of Scotland, Newton-Stewart  
 1895 M'Harrie, Stair, Rephad, Stranraer  
 1900 M'Intyre, James, Logan Mains, Ardwell  
 1899 M'Intyre, Peter, Balke, Castle Kennedy  
 1904 Mackeand, A. W., M.R.C.V.S., 8 Bank Street, Wigtown  
 1880 M'Keand, P., Airies, Whauphill  
 1909 M'Kie, Andrew, Knockbrex, Newton-Stewart  
 1910 M'Lauchlin, Alex., Cross Roads, Stranraer

## Admitted

- 1898 M'Lean, Charles Arbuthnot, Solicitor, Wigtown  
 1871 M'Master, Hugh, Blairbry, Port William  
 1910 M'Master, James, Auchland, Wigtown  
 1876 M'Master, William, Challoch, Dunragit  
 1908 M'Neill, Alex. Henry, Carsriggan, Kirkcowan  
 1886 Manson, Anderson, Barnvannoch, New Luce  
 1905 Marshall, Albert James, Bridgebank, Stranraer  
 1898 Marshall, J., jun., Drummora, Stranraer  
 1885 Marshall, Mathew, Bridgebank, Stranraer  
 1878 Matthews, A. B., British Linen Bank, Newton-Stewart  
 1910 Matthews, John Gordon, Orchardton, Garlieston  
 1877 MAXWELL, Sir H. E., of Monreith, Bart., D.C.L., LL.D., F.R.S., Whauphill, N.B.  
 1887 Menzies, W. M., Cults, Castle-Kennedy  
 1875 Milroy, James, Galdenoch, Stoneykirk  
 1876 Milroy, John, Galdenoch, Stranraer  
 1895 Morrison, D. William, Derry, Kirkcowan  
 1895 Morrison, David, Boreland, Kirkcowan  
 1896 Murray, John, Kilfilan, Glenluce  
 1898 Nicholson, Andrew, Kilsdale, Whithorn  
 1898 Niven, John F., Mahaar, Kirkcolum  
 1903 Parker, John, Balyett, Stranraer  
 1903 Parker, William, Inchparks, Stranraer  
 1894 Paterson, John W., Mains, Whithorn  
 1895 Paton, Robert, Mains of Airies, Ervie, Stranraer  
 1908 Rain, William, South Balforn, Kirkinner  
 1888 Ralston, Wm. H., Dunragit Estate Office, Dunragit, N.B.  
 1897 Ritchie, John, Lochans Mill, Lochans  
 1893 Robertson, James, Low Craichmore, Leswalt, Stranraer  
 1906 Rodan, John Miller, Millbank, Glenluce  
 1878 Routledge, J. J. F., Old Mill, Port William  
 1908 Routledge, Joseph, Barsalloch, Port William  
 1870 Routledge, Wm., Elrig, Whithorn  
 1898 Shaw, David Burnie, Garlieston  
 1904 Sproat, Wm., North Balforn, Kirkinner  
 1904 STAIR, the Earl of, Lochinch, Castle-Kennedy Station  
 1869 STEWART, Sir Mark J. M'T., of Southwick, Bart., Ardwell  
 1898 Taylor, Peter, Longforth, Glenluce  
 1871 Thompson, Alexander, Barneal, Port William  
 1898 Thorburn, John, Port-of-Spittle, Stoneykirk  
 1898 Tully, William, Colfin, Stranraer  
 1903 Walker, H. H., Monreith Estate Office, Whauphill  
 1907 Wallace, John A. A., of Lochryan, Cairnryan, Stranraer  
 1870 Whyte, James A., Kirkmabreck, Stranraer  
 1903 Williams, B. H. Lawson, Holm of Bargannan, Newton-Stewart  
 1894 Wither, Thos., Awkirk, Stranraer  
 1911 Wyllie, John E., The Creamery, Dunragit  
 1898 Young, William, Culnag, Sorbie

## 7.—INVERNESS DISTRICT.

### EMBRACING THE

COUNTIES OF CAITHNESS, ELGIN, INVERNESS, NAIRN, ORKNEY  
AND SHETLAND, ROSS AND CROMARTY, AND SUTHERLAND.

#### CAITHNESS.

Admitted  
1901 Barnettson, Benjamin, Milton, Wick  
1901 Budge, James, Barnyards, Wick  
1909 Campbell, A. D., Stanstill, Wick  
1904 Campbell, Wm. Jas., Sibster House,  
Halkirk  
1901 Clyne, Alexander, of Tister, Bower,  
Caithness  
1910 Clyne, George, Noss Farm, Wick  
1908 Coghill, Donald, Hillhead, Wick  
1901 Davidson, Charles, Coggie, Watten,  
Caithness  
1901 Davidson, James, West Watten, Caith-  
ness  
1901 Dunnet, Alex., Joiner, Bower, Wick  
1894 Dunnet, Alex., Upper Gillock, Wick  
1901 Dunnet, George, Greenland, Castletown,  
Caithness  
1894 Ferrier, Jas., Ackergill Mains, Wick  
1905 Finlayson, Peter, West Greenland,  
Castletown, Thurso  
1902 Gunn, David, Murkie Estates Office,  
Thurso  
1909 Gunn, George, Skail, Donnreay, Thurso  
1874 Henderson, A. W., of Sibster, Wick  
1888 Henderson, David P., of Steinster, Hal-  
kirk, N.B.  
1888 Henderson, Colonel J. H., Bellevue,  
Wick  
1881 Horne, Edward Wm., of Strickoke  
1892 Innes, Donald, Borlum, Reay, Thurso  
1905 Innes, J. D., Calder Mains, Halkirk,  
Thurso  
1878 Irvine, G. F., Shrubbery Bank, Thurso  
1901 Keith, Peter, Ulbster Estates Office,  
Thurso  
1899 King, George, Berriedale, Caithness  
1897 Macdonald, George, Pennyland, Thurso  
1901 M'ivor, John, Borrowston, Thurso  
1903 Mackay, Donald, Town and County  
Bank, Thurso  
1901 Mill, Peter, Achscrabster, Thurso  
1861 Miller, John, of Scrabster, Thurso  
1892 Miller, William, Scrabster, Thurso  
1909 Morris, Donald, Almster, Halkirk  
1894 Morris, Robt., Reis Lodge, Wick  
1908 Morris, William, Clyth Mains, Caithness  
1901 Nicholson, Alex., East Murkie, Thurso  
1881\* Portland, His Grace the Duke of,  
K.G., Langwell, Wick  
1889 Purves, William, Thurdston, Thurso  
1884 Robertson, Robert, Implement Maker,  
Wick  
1908 Robson, John, jun., Lynegat, Watten,  
Caithness  
1906 Sharp, Adam James, Clyth, Caithness  
1900 Sinclair, Donald, Implement Maker,  
Wick

Admitted  
1901 Sinclair, Donald, Stampster, Westfield,  
Thurso  
1892 Sinclair, Fred, Granville, of Mey, Barro-  
gill Castle, Thurso  
1857 SINCLAIR, Sir J. G. T., of Ulbster, Bart.,  
Thurso Castle, Thurso  
1886 SINCLAIR, Sir John R. G., of Dunbeath,  
Bart., Barrock House, Wick  
1855 Smith, James, of Oirig, Thurso  
1878 Sutherland, Alex., Ramyards, Watten—  
*Free Life Member*  
1907 Waters, Donald, Lochend Farm, Dunnet,  
Thurso  
1901 Younger, Alex. Hay, Castletown, Caith-  
ness

#### ELGIN.

1901 Adam, Alexander, Kinneddar, Lossie-  
mouth  
1889 Adam, John, Coulardbank, Lossiemouth  
1908 Allan, D. M., Ballintomb, Grantown-  
on-Spey  
1910 Allan, Peter, Earlsmill, Brodie, Forres  
1884 Anderson, Robert, Viewfield, Elgin  
1899 Anderson, William, Wester Colfield,  
Alves, Forres  
1901 Austin, Alex., Grand Hotel, Elgin  
1901 Black, W. Rose, Town and County Bank,  
Elgin  
1898 Brown, James, Miltonhill, Alves, Forres  
1895 Brown, James Paterson, Innesmill,  
Urquhart, Elgin  
1908 Bruce, Chas. Minto, The Langcote,  
Forres  
1878 Bruce, D. C., Byres, Fochabers  
1901 Butler, Patrick, Hillhead, Forres  
1901 Calder, Charles C., Assistant Factor,  
Earlsmill, Forres  
1878 Cruickshank, David, Maft, Elgin  
1908 Cumming, D. G., Royal Bank, Forres  
1874 CUMMINGS, Sir Wm. G. Gordon, of Altyre,  
Bart., Forres  
1902 Cunningham, David J., Factor's House,  
Fochabers  
1907 Davidson, A. E., Barlaymill, Brodie,  
Forres  
1876 Dawson, William, Gordon Castle, Foch-  
abers  
1895 Dean, Alexander, Jointure, Leuchars,  
Elgin  
1899 Dean, James, Crown Inn, Findhorn,  
Forres  
1894 Dean, Wm., Midtown, Findraissie, by  
Elgin  
1876 Duff, J. W., Wharton, of Orton, Orton  
House, Fochabers



Admitted  
 1908 Duncan, Alex., Cowfords Mills, Fochabers  
 1904 Edgar, James, jun., Gordon Arms Hotel, Fochabers  
 1899 Fenwick, William, Darnaway Estates Office, Earlsmill, Forres  
 1885 Ferguson, George A., Surradale, Elgin  
 1893 Fettes, John, Westertown, Fochabers  
 1893 Fettes, William, Corskia, Garmouth  
 1901 Findlay, John F., Trochelhill, Fochabers  
 1898 Forbes, Robert, Woodhead, Forres  
 1901 Forsyth, Robert, Claydales, Forres  
 1895 Fraser, Alexander, Lochyhill, Rafford, Forres—*Free Life Member*  
 1901 Fraser, Donald, Hempriggs, Alves, Forres  
 1893 Fraser, William, Waterford Mills, Forres  
 1898 Grant, Charles, Drumbain, Rothes  
 1894 Grant, Jas., of Glen Grant, Rothes  
 1894 Grant, John, Dalsiegh, Advie  
 1879 Grant, J., Mains of Advie, Advie  
 1899 Grant, J. W. H., of Wester Elchies, Carron Lodge, Carron, Morayshire  
 1894 Grant, Robt., Farmer, Cromdale  
 1901 Grant - Peterkin, Montagu James, of Grange, Forres  
 1904 Gregory, Alex. Macdonald, Maryhill, Elgin  
 1910 Grigor, James, Chapelton, Forres  
 1880 Haddow, P. M., St Mary's, Orton Station  
 1905 Hastilow, George Reginald, Auchnagomall, Grantown-on-Spey  
 1888 Henderson, Peter, Factor, Ballindalloch  
 1899 Innes, Peter, Orbliston, Fochabers  
 1897 Johnston, Colonel C. J., Lesmurdie, Elgin  
 1899 Johnstone, John A., Glenburgie Distillery, Kinloss  
 1898 King, William, Kingsmills, Elgin  
 1896 Laing, Andrew, Brandston, Lochhill, Elgin  
 1895 Laing, William, Wallfield, Lochhill, Elgin  
 1903 Law, Alfred M., Carswell, Alves  
 1898 Law, Arthur W., Whitrow, Forres  
 1909 Law, Owen J., Mains of Sangnhar, Forres  
 1909 Law, William, Solicitor, Elgin  
 1874 Lawrence, James, Forres Mills, Forres  
 1898 Leitch, Andrew, Inchsteillie, Alves, Forres  
 1877 Leitch, Simon, Rose Avenue, Elgin  
 1902 Longmoor, James, Linksfield, Elgin  
 1902 M'Bain, George, Linkwood Distillery, Elgin  
 1898 M'Culloch, Alexander, Ardivot, Lossiemouth  
 1902 M'Donald, Alex., Balmoral Terrace, Bishopmill, Elgin  
 1911 Macdonald, James Logie, Wester Manbein, Elgin  
 1907 Macdonald, Wm., Elome Farm, Castle Grant, Grantown-on-Spey  
 1901 M'Garra, Gilbert R., Innes Estate Office, Urquhart, Elgin  
 1886 M'Gregor, Captain James, Balmenach, Cromdale  
 1870 Mackay, H. M. S., Banker, Elgin  
 1880 Mackenzie, Thomas, Dalluaine House, Carron, Morayshire  
 1898 Mackessack, Charles A., Findhorn, Forres  
 1893 Mackessack, Charles, Wester Alves, Forres  
 1882 Mackessack, George R., of Ardyge and Roselsie, Ardyge, Elgin  
 1882 Mackessack, R. H., Newton of Struthers, Forres  
 1902 M'Laren, William, Altyre, Forres  
 1888 Maclean, George A., of Westfield, Elgin  
 1891 MacLeod, Major Norman, of Dalvey, Forres

Admitted  
 1908 Macpherson-Grant, George, yr. of Ballindalloch  
 1883 Macpherson-Grant, Sir John, of Ballindalloch, Bart.  
 1876 M'William, James, Garbity, Orton Station  
 1909 M'William, John, Shempston, Duffus, Elgin  
 1901 Mann, John, Cairnglass, Dunphail  
 1898 Mathieson, Alex., Doonpark, Forres  
 1898 Mavor, George, Cluny, Forres  
 1901 Mavor, Richard, Wellhill, Forres  
 1873 Muirhead, George, Speybank, Fochabers  
 1894 Munro, Alex., Gordon Arms Stables, Elgin  
 1901 Murray, Wm., Auctioneer, St Leonards, Elgin  
 1894 Mutch, Jas., Deanshaugh, Elgin  
 1894 Neish, William, Merchant, Muibin, Boharm  
 1905 Nicol, John P., East Mains, Duffus  
 1894 Petrie, David, Gilston, Elgin  
 1888 Petrie, George, Pitairie, Elgin  
 1901 Ramsay, William, of Longmorn, Elgin  
 1904 Reid, George, Tamdhu Distillery, Knockando, S.O.  
 1901 Reid, George, Rothills, Duffus, Elgin  
 1895 Reid, John, Gladhill, Garmouth, Elgin  
 1899 Rhind, Alex., Muirton, Kinloss  
 1898 Robertson, Hugh, Balmageith, Forres  
 1896 Robertson, James, Barmuckity, Elgin  
 1870 Robertson, Wm. A., Mayfield, Forres  
 1899 Rose, William M., Toreduff, Alves, Forres  
 1906 Russell, Jas., 21 Reidhaven Street, Elgin  
 1892 Scott, David, Auctioneer, Elgin  
 1897 Scott, Peter, Mains of Moy, Forres  
 1898 Shiach, Gordon Reid, Surgeon Dentist, Elgin  
 1901 Simpson, John, Stynie, Fochabers  
 1898 Simpson, William, Burnsie, Fochabers  
 1896 Smith, James M., SALTERHILL, Elgin  
 1901 Smith, J. Grant, Strathspey Estate Office, Grantown-on-Spey  
 1905 Smith, Peter, 24 North Street, Elgin  
 1900 Smith, Samuel M'Call, Rose Avenue, Elgin  
 1897 Souter, George, Greyfriars Iron Works, Elgin  
 1898 Stephen, Alexander, Coxton, Lhanbryde, Elgin  
 1894 Stewart, John, Rynaballoch, Cromdale  
 1909 STUART, Lord Colum Orickton, Pluncarden, Elgin  
 1906 Stuart, Robert Dick, Rothes  
 1893 Tait, James, V.S., Forres  
 1874 Thomson, J. Grant, Heathfield, Grantown  
 1888 THURLOW, Right Hon. Lord, Dunphail, Forres  
 1908 Tulloch, William D., Grangegreen, Forres  
 1899 Turner, James Stuart, Teacher, New Elgin  
 1882 Urquhart, Robert, jun., Forres  
 1859 Walker, Robert, Rosefield, Elgin  
 1902 Watson, Alex., Bruceand, Elgin  
 1883 Watson, H. A., U.F. Mansie, Forres—*Free Life Member*  
 1901 Wiseman, Edward, Nurseryman and Seedman, Elgin  
 1870 Wight, Alexander, Ironmonger, Forres  
 1864 Yool, Thomas, Calcots, Elgin

## INVERNESS.

1900 Allan, Alex., Seafield Farm, Inverness  
 1901 Allan, John M., Easter Duthil, Carr Bridge

Admitted

- 1901 Allison, Thomas, Solicitor, Fort-William  
 1901 Anderson, Alexander, 49 Eastgate, Inverness  
 1886 Baillie, A. O., Dochgarroch, c/o Baillie & Gifford, W.S., 12 Hill Street  
 1888 Baillie, James M. B., of Dochfour, Inverness  
 1891 Barron, James, Editor of the *Inverness Courier*, Inverness  
 1888 Birnie, Alex., Wellhouse, Beaully  
 1892 Birnie, John, Balmfettack, Inverness  
 1874 Blasco, T. Ramsay, of Newton, Kingillie, Inverness  
 1901 Blundell, Rev. Odo, The Procurator, The Abbey, Fort-Augustus  
 1876 Brebner, Robt., Ormus Cottage, Citadel, Inverness  
 1901 Burns, William, Lombard Street, Inverness  
 1891 Cameron, Angus, Ben Nevis Auction Mart, Fort-William  
 1909† Cameron, Capt. Donald W., of Lochiel, Achnacarry, Spean Bridge  
 1909 Cameron, Donald, Balvonie of Leys, Inverness  
 1895 Cameron, Francis, Lower Muckovie, Inverness  
 1890 Cameron, James, Coulnakyle, Nethy Bridge, S.O.  
 1892 Cameron, James T., Gesto, Isle of Skye  
 1892 Cameron, Robert D., Lochgorm, Inverness  
 1901 Campbell, Alexander, Viewhill, Fort-George  
 1891 Campbell, G. J., Sheriff Substitute, The Court House, Portree  
 1901 Cargill, A., Ralmore, Inverness  
 1891 Cattell, James, Balaparden, Gollanfield  
 1908 Chisholm, Duncan, Calplich, Kiltarlity, Beaully  
 1874 Chisholm, John, 8 Academy Street, Inverness  
 1901 Chisholm, William, Groom, Beaully  
 1896 Coles, Douglas, Keppoch, Roy Bridge  
 1900 Cowan, R., Erchless, Strathglass, Beaully  
 1900 Cran, William John, Kirkton, Bunchrow  
 1896 Cumming, William A., Allanfean, Inverness  
 1898 Davidson, James, Beech Hill, Crown Avenue, Inverness  
 1898 Davidson, John, Guisachan Home Farm, Inverness  
 1901 Davidson, T. K., Dalaross, Inverness  
 1907 Dixon, R. H., Clunes, Achnacarry, Spean Bridge  
 1887 Dunsan, James, Fern Villa, Inverness  
 1902 Elliot, Matthew, Drummond Street, Inverness  
 1902 Elliot, William Robert, Drummond Street, Inverness  
 1896 Fletcher, Grant, Balmespick, Kinraig  
 1894 Fraser, Alexander, Balloch, Culloden, Inverness  
 1894 Fraser, Alexander, Solicitor, Inverness  
 1888 Fraser, David, Dalnair, Inverness  
 1910 Fraser, George Mackay, Solicitor, Portree  
 1874 Fraser, James, C.M., Inverness  
 1901 Fraser, John Huntly, Dalnair, Inverness  
 1902 Fraser-Mackenzie, Robert S., Bunchrow, Inverness  
 1900 Fulton, James, Newton Farm, Lochmaddy  
 1911 Gair, J. H., Easter Monlack, Kirkhill, Inverness  
 1892 Garrioch, J. T., Lovat Estates Office, Beaully  
 1906 Gibson, Thos., Solicitor, Inverness

Admitted

- 1901 Gordon, Roderick, Wester Inshes, Inverness  
 1900 Gossip, James A., Knowsley, Inverness  
 1901 Graham, Hugh M., Solicitor, Inverness  
 1907 Grant, Alex., Delrachney House, Carr Bridge  
 1901 Grant, John C., Garvault, Advie, Strathspay  
 1894 Grant, John Peter, of Rothiemurchus, Aviemore  
 1901 Grant, Lewis, Culfoichbeg, Advie, Strathspay  
 1896 Grant, Peter, The Hotel, Carr Bridge  
 1908 Grant, Wm., The Dell, Rothiemurchus, Aviemore  
 1911 Gray, D., 86 Union Street, Inverness  
 1882 Gunn, Alex., V.S., Beaully  
 1906 Hutchison, Alexander, Balloan, Inverness  
 1905 Johnston, Hugh G., Culduthel Main, Inverness  
 1900 Johnston, William, Braeton of Leys, Inverness  
 1888 Jones, R. E., Fasfern, Kintochiel, S.O.  
 1906 Jones, Wm. Everard, Fasfern, Kintochiel  
 1901 Junor, Donald, Robin Cottage, Drummond, Inverness  
 1910 Junor, Peter, 58 Queensgate, Inverness  
 1909 Keir, James S., Arisaig Estate, Borrodale, Arisaig, Inverness-shire  
 1889 Kemble, Major, Knock, Skye  
 1911 Kennedy, James (Macdonald, Fraser, & Co.), Inverness  
 1888 Laurie, Robert, Eilean Cottage, Drumzurn, Inverness  
 1891 Linton, Andrew, Cullodrag, Onich, N.B.  
 1894 Livingston-Macdonald, Captain R. M., 8rd Seaforth Highlanders, Fiodigarry, Isle of Skye  
 1901 Logan, William, V.B., 8 Victoria Cross, Inverness  
 1892† Lovat, Lord, C.B., D.S.O., K.C.V.O., A.D.C., Beaufort Castle, Beaully  
 1897 McAlush, James, Kinchurdy, Boat of Garten  
 1892 MacAlush, John, Congash, Grantown  
 1905 McAllister, Wm., The Hackney Stud, Inverness  
 1906 MacArthur, Donald Charles, Enderidge, Newtonmore, Kingussie  
 1905 McBain, Wm., Dunachton, Kingussie  
 1892 McBain, William, Pitkerried, Drumadrochit  
 1901 McCall, A., 22 Eastgate, Inverness  
 1908 McCall, Ewen, Balmaglack, Dalmore, Inverness  
 1888 Macdonald, Alexander, Balintore, Kirkhill, Inverness  
 1910 Macdonald, Andrew E., Braehead, Inverness  
 1874 Macdonald, A. R., Ord, Isle of Ornsay  
 1899 Macdonald, Arch. Wm., Blarour, Spean Bridge  
 1872 Macdonald, D., Tormore Lodge, Borrodale, Portree  
 1907 Macdonald, Donald, Beak of Knapoch, Arisaig  
 1898 McDonald, D. D., Drumadroch, Glen Urquhart  
 1889 Macdonald, Hugh, Coach Proprietor, Fort-William  
 1899 Macdonald, Jas. Alex., Herald, of National Loanmachinery, North City  
 1901 Macdonald, John, Glenelg, Carboist, Isle of Skye  
 1896 Macdonald, John, Duffie, Fort-William  
 1911 Macdonald, John, Timber Merchant, Carr Bridge, Inverness  
 1901 Macdonald, J. H., of Torbreck, Inverness

## Admitted

- 1897 M'Donald, Kenneth L., Skirinish, Skeabost Bridge, Isle of Skye  
 1899 Macdonald, Ronald, Solicitor, Portree  
 1901 Macdonald, Simon, Culduthel, Inverness  
 1888 Macdonald, William, Morayston, Dalcross, Inverness  
 1898 Macdonell, Jas. Sidgreaves, Camusdarroch, Arisaig  
 1899 MacDonnell, Alexander, Dunhalloch, Beaully  
 1866 MacEwen, John C., Inverness  
 1898 Macfarlane, And., Viewfield, Kingussie  
 1899 M'Gillivray, W., Garbole, Tomatin  
 1876 MacGillivray, William, Belligary, Barra  
 1877 M'Gregor, Arch., Glen Nevis, Fort-William  
 1898 Mackay, Simon (D. Ross & Co.), Baron Taylor's Lane, Inverness  
 1901 Mackay, William, Solicitor, Inverness  
 1898 M'Kenzie, Alex., C.M., Kingussie  
 1902 Mackenzie, Alex. J., Dochfour Estates Office, Academy St., Inverness  
 1901 M'Kenzie, David Fraser, Stratton, Culloden, Inverness  
 1910 Mackenzie, D. R., C.A., Church Street, Inverness  
 1911 Mackenzie, John, Factor, Dunvegan, Isle of Skye  
 1891 Mackenzie, Dr M. T., Scolpaig, Lochmaddy  
 1908 Mackenzie, N. B., Estate Office, Fort-William  
 1874 Mackenzie, N. B., British Linen Bank, Fort-William  
 1902 Mackenzie, R. D., Inchroty, Beaully  
 1901 Mackenzie, Simon, The Hotel, Lochboisdale  
 1905 Mackenzie, Thomas, Factor, Invergarry  
 1886 Mackenzie, William D., of Farr, Daviot (Fawley Court, Hanley-on-Thames)  
 1905 Mackinnon, Chas., Howden & Co., Inverness  
 1883† Mackintosh, A. D., of Mackintosh, Moy Hall, Inverness  
 1888 Mackintosh, Hugh, Balmore, Culduthel, Inverness  
 1908 Mackintosh, Hugh, Rose Valley, Gollanfield  
 1901 Mackintosh, W. W., of Raigmore, Inverness  
 1910 MacLean, Archibald, Creagorry, Bonbecula, South Uist  
 1901 Maclean, Neil, Nunton, Bonbecula, Lochboisdale  
 1911 Maclean, Wm., Tallisker Farm, Portree  
 1876 M'Leish, Daniel, Bank of Scotland, Fort-William  
 1901 M'Leod, Murdo, Woodend, Drummond, Inverness  
 1898 M'Lennan, Alexander, Beechwood, Inverness  
 1911 M'Lennan, John, Job-Master, Edwards Court, Inverness  
 1908 Macpherson, Albert Cameron, of Cluny, Cluny Castle, Kingussie  
 1878 Macpherson, O. J. B., of Balavil, Kingussie  
 1888 MacRae, Alexander D., Ruthven, Kingussie  
 1911 Macrae, D., Eastgate, Inverness  
 1900 MacRae, Duncan, Falls of Truim, Newtownmore  
 1891 Macrae, Horatio Ross, W.S., of Clunes, Inverness (67 Castle St., Edinburgh)  
 1909 Macrae, James W., Lovat Arms Hotel, Beaully  
 1901 Macrae, Roderick, jun., Lovat Arms Posting Establishment, Beaully  
 1901 M'Tavish, P. D. (Stewart, Rule, & Co.), Inverness

## Admitted

- 1900 M'William, W. L., Culmill, Kiltarlity, Beaully  
 1869 Malcolm, George, Craigard, Invergarry  
 1908 Malcolm, George, jun., Auchendaul, Spean Bridge  
 1888 Mannera, C. R., C.E., Inverness  
 1889 Martin, Nicol, of Glendale, Dunvegan  
 1884 Maxwell, Hon. B. O., Farley House, Beaully  
 1888 Merry, A. W., of Belladrum, Beaully  
 1888 Merry, C. J., Belladrum, Beaully  
 1874 Mitchell, Andrew, 51 Crown Street, Inverness  
 1900 Morison, John, Teanabonig, Beaully  
 1905 Morrison, John, Ardersier, Inverness-shire  
 1908 Munro, Alex., Dell of Inshes, Inverness  
 1904 Murdoch, James, Drynie Mains, Inverness  
 1898 Murray, Donald, 60 Eastgate, Inverness  
 1902 Murray, John, Rangamore Road, Inverness  
 1901 Nairn, James, Newton of Petty, Inverness  
 1890 Nicholson, Arthur Wm., Arisaig House, Fort-William  
 1898 Oberbeck, C., Alexandra Hotel, Inverness  
 1879 Reid, F. R., Wolfenden's Hotel, Kingussie  
 1888 Roberts, Wm., Highland Railway Co., Inverness  
 1902 Robertson, Donald, Kerrow, Kingussie  
 1906 Robertson, D. J., Dalziel, Gollanfield Station  
 1892 Robertson, John, Auctioneer, Inverness  
 1900 Robertson, James, Inspector, Board of Agriculture, Inverness  
 1911 Robertson, Norman, Askarnish, South Uist  
 1901 Robertson, Theodore, Auction Mart, Inverness  
 1894 Robertson-Macleod, K. M., of Greshornish, Isle of Skye  
 1890 Rose, Hugh Francis, of Holme Rose, Fort-George  
 1865 Rose, James, Mains of Connage, Gollanfield  
 1865 Rose, John, Abersky, Torness, Inverness  
 1888 Ross, Alex., Architect, Inverness  
 1909 Ross, Alex., Foonton, Gollanfield, Inverness  
 1888 Ross, James, Solicitor, Inverness  
 1888 Ross, Wm., Seafield of Raigmore, Inverness  
 1910 Ross, William R., Leannach, Culloden Moor, Inverness  
 1901 Shaw, D., Flichity, Daviot  
 1888 Shaw, Duncan, W.S., Inverness  
 1901 Shaw, John A., Blackbule, Inverness  
 1900 Smith, R. A., Wester Lovat, Beaully  
 1903 Sopper, Wm., of Dunnaglass, Daviot, Inverness  
 1902 Souter, James Francis, Commercial Bank, Inverness  
 1901 Steele, A. F., St Colme, Inverness  
 1901 Stewart, Charles D., of Brin, Daviot  
 1887 Stewart, J. C., Glenmoldart, Moldart  
 1896 Strothor, Dr James, Balmachree, Petty, Inverness  
 1902 Stuart, Henry, Estate Office, Knoydart, Mullailg  
 1865 Sutherland, E. C., Highland Club, Inverness  
 1808 Thom, Allan Gilmour, Canna  
 1888 Tytler, Edward G. F., of Aldourie, Inverness  
 1911 Urquhart, Angus, Seedman, Inverness  
 1902 Walker, James, Sawmills, Inverness

**Admitted**

- 1886 Watson, Jas., Moy Hall, Moy, Inverness  
 1908 Weir, James, Auchnessail, Spann Bridge  
 1902 Wolfenden, William, Duke of Gordon Hotel, Kingussie  
 1901 Young, John, Oldtown, Inverness

**NAIRN.**

- 1902 Adam, Walter, Park, Nairn  
 1901 Allan, James, Penich, Auldearn, Nairn  
 1901 Allan, James A., Broomhill, Nairn  
 1909 Anderson, Alfred, Newmill, Auldearn, Nairn  
 1911 Barron, Colin C., Broombank, Nairn  
 1878 Cameron, Dr James Angus, of Firhall, Nairn  
 1901 Clark, Alex., Blackpark, Nairn  
 1900 Clark, Walter, Hilton of Delnices, Nairn  
 1902 Davidson, Donald, Mains of Croy, Gollanfield  
 1888 Donaldson, H. T., Banker, Nairn  
 1892 FINLAY, Sir R. B., of Newton, K.C., M.P., Nairn  
 1896 Macarthur, Alex., Nairnside, Cawdor, Nairn  
 1906 MacArthur, David, Fleenas, Nairn  
 1911 M'Kenzie, Donald, Meikle Kildrummie, Nairn  
 1901 M'Killigan, James, Glenlyon, Nairn  
 1876 M'Pherson, Donald, Station Hotel, Nairn  
 1908 Masson, George, Mill of Lethen, Auldearn, Nairn  
 1874 Mather, John Arnes, Delnices, Nairn  
 1885 Mill, George, Piperhill, Nairn  
 1901 Robertson, Hugh, Newton of Cawdor, Nairn  
 1878 Robertson, John S., Cawdor Estate Office, Nairn  
 1894 Robertson, William, Tomlunquhart, Nairn  
 1901 Rose, Donald, Crook, Nairn  
 1894 Squalr, Geo., Kildrummie, Nairn  
 1906 Stephen, Wm., Meikle Geddes, Nairn  
 1884 Stewart, D. A., Lochdhu, Nairn  
 1901 Tocher, James, Blairmore, Cawdor, Nairn  
 1908 Tulloch, Charles, Braeval, Lethen, Nairnshire  
 1911 Tulloch, James, Mains of Moyness, Auldearn, Nairn  
 1875 Walker, George A., Heathmount, Nairn  
 1907 Watson, Wm., Home Farm, Cawdor Castle, Nairn

**ORKNEY AND SHETLAND.**

**ORKNEY.**

- 1907 Bell, Robt. B., Whitehall, Stronsay, Orkney  
 1910 Clouston, John, Graemashall, Holm, Orkney  
 1870 Cromarty, William, Widewall House, South Ronaldshay, Orkney  
 1894 Davidson, William Henry Bain, Kirkwall  
 1906 Gibson, James, Hutton House, Rousay, Orkney  
 1896 Heddle, Peter Sinclair, Gaitnup, Kirkwall  
 1901 Ironside, William A., Bankhead, Sandwick, Orkney  
 1899 Irvine, James, Stove Farm, Sanday, Orkney  
 1879 Johnstone, James, Orphir House, Orphir  
 1906 Kennedy, John, Bow, Burray, Orkney

**Admitted**

- 1908 Logie, John, Trumland Lodge, Rousay, Orkney  
 1892 MacLennan, William, Factor, Zetland Estates Office, Kirkwall  
 1904 Marwick, William, Estate Office, Walls, Orkney  
 1887 Maxwell, Henry, How, Sanday  
 1884 Reid, Alfred, Braebuster, Kirkwall  
 1905 Robertson, James M. H., Lyking, Sandwick, Stromness  
 1884 Searth, Robert, Binscarth, Finstown, Orkney  
 1904 Skea, James G., Ayre, Deerness  
 1884 Stephen, Donald, Caldale, St Ola, Kirkwall  
 1877 Stevenson, William, Holland, Stronsay  
 1901 Ward, W. Cowper, Factor, Scar, Sanday

**SHETLAND.**

- 1908 Adie, James A., Voc, Shetland  
 1884 Anderson, Gilbert, Hillswick, Lerwick  
 1909 Bruce, Mrs Mary D., of Sumburgh, Shetland  
 1892 Edmondston, Laurence, of Buncess, Unst  
 1907 Edmondston-Saxby, T., Hallgarth, Baltasound, Shetland  
 1907 Mackay, Hugh, Mailland, Baltasound, Shetland  
 1891 Mannon, Peter, Lunna, Shetland  
 1901 White, Mountford Adie, Belmont, Uyesaound, Shetland

**ROSS AND CROMARTY.**

- 1901 Adam, William A., Humberston, Dingwall  
 1888 Anderson, T. A., Ballachraggan, Ainess  
 1896 Bain, Donald, Greenhill, Dingwall  
 1909 Beaton, John A., Bayfield, Keasook  
 1892 Bignold, Sir Arthur, of Loch Rosque, Achnessheen  
 1893 Binning, James, Strathpeffer  
 1909 Bisset, John A., Drumderfitt, Munlochy  
 1901 Brook, Alex. Wm., Corn Merchant, Invergordon  
 1901 Brooke, John A., of Fearn Lodge, Ardgay  
 1887 Brown, Rev. W. L. Wallace, The Manse, Ainess  
 1908 Budge, John Henry, Barrachie, Nigg  
 1904 Budge, Joseph, of Barrachie, Nigg  
 1888 Cameron, Coffin M., Balnakyle, Munlochy  
 1869 Cameron, Duncan, Balblair, Edderton  
 1896 Cameron, Kenneth Murray, Balblair, Edderton  
 1901 Campbell, Alex., Balnaben, Conon, Ross-shire  
 1901 Carnegie, Andrew, LL.D., Skibo Castle, Ardgay  
 1894 Colvill, Robert, Torra, Ross-shire  
 1906 Cormack, Alex., Shandwick Mains, Nigg Station, Ross-shire  
 1908 Couper, Wm. H., Wester Ballon, Muir of Ord  
 1906 Cowan, Kenneth, Fyriah, Edderton  
 1906 Cumming, James, Fairfield House, Dingwall  
 1898 Cuthbert, Thomas W., Achindunie, Ainess  
 1899 Davidson, A. B., Lower Kinrossig, Invergordon  
 1907 Davidson, John, Bogbain, Tain  
 1908 Douglas, George, Seafield, Portmahomack  
 1861 Douglas, Thomas, Mains of Rhynte, Fearn

## Admitted

- 1892 Duncan, William J., Solicitor, Ding wall  
 1884 Fletcher, J. D., of Rosshaugh, Avoch  
 1898 Forbes, Lachlan, Culcraigie, Alness  
 1898 Forsyth, Ian Asher, Ballintraid, Delny  
 1897 Fowler, Donald, of Mansfield, Tain  
 1904 Fowler, John A., Drumore, Munlochry  
 1907 Fowler, Sir John E., of Braemore, Bart., Ross-shire  
 1898 Fraser, Donald, jun., Ballintore Hotel, Fearn  
 1898 Fraser, Malcolm F., Balaldie, Fearn  
 1908 Fraser, Roderick, Udale, Poyntzfield, Invergordon  
 1909 Gair, George, V.S., Conon Bridge  
 1902 Garrow, William, Polnicol, Delny  
 1903 Gill, Thomas Douglas, Roskeen, Invergordon  
 1896 Gill, William Hope, Roskeen, Invergordon  
 1874 Gordon, J. A., of Arabella, Nigg  
 1875 Gordon, John, Cullisse, Nig  
 1898 Grant, William, Rarichie, N  
 1894 Henderson, Alex., Merchant,  
 1888 Henderson, James, Culcairn, gordon  
 1884 Henderson, John, Town Clerk, Fortrose  
 1889 Henderson, Thomas, Fortrose  
 1908 Henderson, Wm. Paterson, Ankerville, Nigg Station  
 1908 Hope, Stephen J., Kinnahaird, Strathpeffer  
 1879 Inglis, George, of Newmore, Invergordon  
 1907 Laidlaw, J. D., Eden Cottage, Tain  
 1901 Laing, Robert P. S., Mayfield, Ding wall  
 1892 Linton, John, Castle Craig, Nigg  
 1888 Littlejohn, Alex., of Invercharron, Ardgay  
 1898 Logan, David, Auchtertyre, Strone Ferry  
 1901 M'Corquodale, A., Meddat, Parkhill, Ross-shire  
 1902 M'Donald, Andrew Hall, of Calrossie, Nigg, Ross-shire  
 1898 Macdonald, Donald, Wilkaven, Portmahomack  
 1901 Macdonald, Gordon J., New More Mains, Invergordon  
 1909 Macdonald, T., Crofterunie, Allangrange  
 1906 M'Gillivray, John, Aldie, Tain  
 1874 MacGregor, James G., Tain  
 1897 MacIntyre, Alex. Mackay, Brae, Ding wall  
 1899 M'Intyre, John, Bellfield, North Kessock  
 1876 M'Intyre, P. B., Mains of Findon, Conon Bridge  
 1875 MacIntyre, Robert, of St Martin's, Conon Bridge  
 1907 Mackay, David J., of Heathmount, Tain  
 1892 Mackenzie, Sir A. G. Ramsay, of Coul, Bart., Strathpeffer  
 1872 Mackenzie, Andrew, of Dalmore, Alness  
 1895 Mackenzie, A. F., Inverbreakie, Invergordon  
 1901 Mackenzie, Col. A. F. H. Stewart, of Seaforth, Brahan Castle, Conon Bridge  
 1908 Mackenzie, Charles, British Linen Co. Bank, Tain  
 1901 M'Kenzie, Donald, Meikle Ussie, Conon Bridge  
 1907 Mackenzie, E. N. Burton, Belmaduthy Farm, Munlochry  
 1900 M'Kenzie, Eric G., Ardross Mains, Alness  
 1900 Mackenzie, Edward J., Hilton Farm, Tain—Free Life Member  
 1905 Mackenzie, Hugh, yr. of Dundonnell Dundonnell

## Admitted

- 1895 MACKENZIE, Sir Kenneth J., of Gairloch, Bart. (10 Moray Place, Edinburgh)  
 1888 Mackenzie, William, Procurator-Fiscal, County Buildings, Dingwall  
 1899 Mackenzie, Wm. Farquharson, yr. of Dalmore, Alness  
 1900 Mackintosh, D., Auctioneer, Dingwall  
 1901 Maclean, R., of Drynie, Kessock, Inverness  
 1900 M'Lennan, William, Ardnagrask, Muir of Ord  
 1901 MacLeod, Captain R., of Cadboll, Invergordon Castle, Invergordon  
 1878 M'Raw, Donald, Strathgarve Estates Office, Garve, R.S.O.  
 1887 Matheson, Sir Kenneth J., of Lochalsh, Bart., Gledfield, Bonar  
 1911 Meikle, R. S., Scotsburn, Parkhill, Ross-shire  
 1892 Meiklejohn, John J. R., Novar, Evanton  
 1907 Meiklejohn, Wm., Dal Gheal, Novar, Evanton  
 1881 Middleton, Lord, Applecross, Lochcarron  
 1864 Middleton, George, Cornton, Conon Bridge  
 1872 Middleton, Jon., Davidston, Invergordon  
 1908 Middleton, Thomas, Cornton, Conon Bridge  
 1898 Middleton, Walter Ross Taylor, Solicitor, Dingwall  
 1905 Moore, D. H., Drummond, Evanton  
 1904 Munro, Alex., Newton of Novar, Evanton  
 1901 Munro, David, Tanagairn, Conon Bridge  
 1901 Munro, Finlay, of Rockfield, Fearn  
 1888† Munro, Sir Hector, of Foulis, Bart., Dingwall  
 1898 Munro, Hector, V.S., Fearn  
 1901 Munro, Kenneth, Tullich, Munlochry  
 1892 Munro, Stuart C., of Teanachich, Alness  
 1891 Murdoch, Alex., Dalnavie, Alness  
 1904 Murdoch, James, Drynie Mains, Inverness  
 1884 Murray, Chas., of Lochcarron, Dingwall  
 1888 Murray, William, Kilcoy, Killearnan, R.S.O.  
 1892 Ness, Charles, Calrossie Mains, Nigg Station  
 1898 Paterson, Alex., Edderton, N.B.  
 1908 Paterson, Wm., Ironmonger, Invergordon  
 1874 Paterson, Wm. G., Ord, Invergordon  
 1898 Perrins, C. W. Dyson, Ardross Castle, Alness  
 1898 Peterkin, James B., Mountrich, Ding wall  
 1900 Peterkin, John W., Dunglass, Conon Bridge  
 1901 Peterkin, William, Dunglass, Conon Bridge  
 1888 Rae, William, Noniklin, Alness  
 1906 Rattray, Chas. Gordon, Pitglassie, Ding wall  
 1901 Rattray, John C., Broomhill, Muir of Ord, Ross-shire  
 1884 Reid, N., New Kelso, Strathcarron, Ross-shire  
 1901 Robertson, John, Implement Maker, Conon Bridge  
 1895 Robertson, John Cameron, Fodderty, Dingwall  
 1904 Robertson, Peter D., Torachlity, Strathpeffer  
 1902 Robertson, William John, Mounteagle, Fearn  
 1902 Ross, Andrew George, Milleraig, Alness  
 1898 Ross, A. M., Hilton, Fearn, Ross-shire  
 1895 Ross, Donald, Balmagown Arras Hotel, Tain

**Admitted**

- 1908 Ross, Donald (Wallace, Fraser, & Co.),  
Tain  
1898 Ross, George, Bayfield, Nigg  
1898 Ross, George A., Rhyrie, Fearn  
1876 Ross, James, 21 King St., Invergordon  
1874 Ross, John, Milleraig, Alness  
1892 Ross, John F., Pitcalnie, Nigg  
1908 Ross, Sutherland M. (Wallace, Fraser,  
& Co), Tain  
1901 Ross, William, Bridgend, Dingwall  
1887 Ross, Col. W. C., C.B., of Cromarty,  
Cromarty  
1905 Rundiman, A., Cadboll Estates Office,  
Invergordon  
1892 Scott, James, Fearn  
1898 Simpson, David William, Arcan Maina,  
Muir of Ord  
1911 Sinclair, A., Balmagule, Munlochy  
1897 Spence, Alexander O. Stewart, of Gargu-  
ston, Muir of Ord  
1906 Squair, John, Navity, Cromarty  
1891 Stirling, Major William, of Fairburn,  
Muir of Ord  
1888 St Quintin, Geoffray Aspley, Kinchurdy,  
Fortrose  
1895 Stuart, David, Estate Office, Munlochy  
1900 Thompson, Alex. M., Conon Brae, Conon  
Bridge  
1898 Urquhart, Charles, Ironmonger, Ding-  
wall  
1891 Walker, William, Contullich, Alness  
1899 Watherspoon, George, Cromartie Estate  
Office, Kildary

**Admitted**

- 1901 Wood, James, Lochslin, Fearn, Ross-  
shire  
1901 Young, George, Cadboll, Fearn, Ross-  
shire  
1901 Young, James G., Cadboll, Fearn, Ross-  
shire

**SUTHERLAND.**

- 1906 Cameron, James D., Kirkton, Golspie  
1898 Campbell, J. R., Shinness, Lairg  
1901 Dudgeon, William John, Crakrig, Loth  
1908 Haldane, H. P., Skolbo, Sutherland  
1900 Hardie, James F., Factor, Skibo, Dor-  
noch  
1899 Hill, Edward R., Naviedale, Helms-  
dale  
1874 Hill, Robert Robertson, Naviedale  
House, Helmsdale  
1899 Macaulay, A. N., Banker and Factor,  
Golspie  
1888 McLean, Donald, Rhives, Golspie  
1907 McLean, Donald, jun., Dunrobin,  
Golspie  
1844 Menzies, Duncan, Blairach, Lairg  
1874 Mitchell, James R., Birchwood, Rogart  
1901 Mundell, C., Delny Farm, Delny  
1901 Mundell, Walter, Dalchork, Lairg  
1888 Shaw, James T., Gordonbush, Brora  
1896 Taylor, Alex., Sutherland Estate Office,  
Lochinver

**NUMBER OF MEMBERS, 605.**

## 8.—BORDER DISTRICT.

## EMBRACING THE

## COUNTIES OF BERWICK, PEEBLES, ROXBURGH, AND SELKIRK.

## BERWICK.

- Admitted  
 1900 Aitchison, John, Lochnon, Coldstream  
 1892 Aitchison, Wm., Kames, West Mains, Greenlaw  
 1901 Aitken, Captain John Christie, Nisbet, Duns  
 1897 Balfour, C. B., of Newton Don, Kelso  
 1898 Bertram, George William, Birkenside, Earliston  
 1874 Bertram, John, Addinston, Lauder  
 1898 Black, James, Norham West Mains, Norham-on-Tweed  
 1904 Blackadder, John W., Ninewell Mains, Chirnside  
 1891 Broomfield, George L., Solicitor, Lauder  
 1888 Brown, Colonel, of Longformacus, Duns  
 1893 Brown, Robert, Cammo Foundry, Duns  
 1883 Brydon, Thos. T., Burncastle, Lauder  
 1884 Calder, T. A., Billie Mains, Chirnside  
 1872 Calder, W. A., Oxenrig, Coldstream  
 1880 Carmichael, John, Coldstream  
 1907 Carr, J. Evelyn, Heatherly Tops, Scremerston, Berwick-on-Tweed  
 1898 Carter, Thomas (Carter & Sons), Berwick-on-Tweed  
 1902 Cockburn, James, Knock, Duns  
 1889 Cookson, C. L. Stirling, of Renton, Grant's House  
 1872 Cowe, Peter, Old Castles, Chirnside  
 1901 Craw, James Hewat, West Foulden, Berwick-on-Tweed  
 1899 Darling, Alexander, Governor's House, Berwick-on-Tweed  
 1880 Darling, Thomas, 1 Palace Street East, Berwick-on-Tweed  
 1882 Dickenson, Robert, Longcroft, Lauder  
 1899 Dickinson, William Bell, Longcroft, Lauder  
 1891 Dodds, Robt., Blackadder Bank, Chirnside  
 1898 Doughty, James T. S., Ayton  
 1898†Dunelass, Lord, Springhill House, Coldstream  
 1887 Dykes, Thomas, Press Mains, Reston  
 1884 Elder, W., Implement Works, Berwick-on-Tweed  
 1900 Elliot, David P., Nesbit Hill, Duns  
 1898 Elliot, Frank, Middlestots, Duns  
 1910 Elliot, William W., Harehead, Duns  
 1882 Ferguson, J., Duns Castle Estate Office, Duns  
 1898 Fleming, John, jun., Bowerhouse, Oxtou, Lauder  
 1897 Forrest, Robert Jack, Stewartslaw, Edrom  
 1884 Fulton, John, Hatchednize, Coldstream  
 1878†Gibb, Robert Shirra, Boon, Lauder—  
*Free Life Member, 1885*  
 1898 Gillies, John, Edington Mills, Chirnside  
 1907 Gray, Charles, Northburn, Eyemouth
- Admitted  
 1894 Grieve, Andrew, Flass, Gordon  
 1885 Grieve, James, Rumbletonlaw, Greenlaw  
 1898 Hardy, George, Redheugh, Cockburnspath  
 1898 Hardy, William, jun., Whitelaw, Edrom  
 1903 Henderson, George, East Morriston, Earliston  
 1881 Herbertson, Robert H., Fans, Earliston  
 1900 Hogarth, Walter T., Castleview, Berwick  
 1893 Hogg, George, Horsely, Reston  
 1892 Hogg, Robert, Fireburn Mill, Coldstream  
 1900 Holme, Chas. H., of Rathburne, Duns  
 1860†Home, Right Hon. the Earl of, The Hirsell, Coldstream  
 1895 Home, David William Milne, of Wedderburn, Calder, Duns  
 1880 Hood, James, Linhead, Cockburnspath  
 1900 Hood, John, Mid-Edrom, Edrom  
 1879 Hope, A. Peterkin, of Sunwick, Berwick  
 1906 Hope, Cecil Arthur, Chapel-on-Leader, Earliston  
 1886 Hope, Col. Charles, of Cowdenknowes, Earliston  
 1876 Hunter, Jas., of Antonshill, Coldstream  
 1910 Huntly, James, Hirsell Poultry Farm, Coldstream  
 1898 Inch, John, Quixwood, Grant's House  
 1893 Johnstone, Robert Fender, Law House, Coldingham  
 1910 Kerr, George A. B., Laverock Brass, Reston  
 1886 Laurie, John H., Hardens, Duns  
 1907 Leggat, J. Morison, Legerwood, Earliston  
 1907 Little, Jack, Stainrig, Coldstream  
 1899 Lockie, William, Choiselec, Duns  
 1884 Logan, Adam S., Fernay Castle, Reston  
 1893 Lyal, Alex., Greenknowe, Gordon  
 1905 Lyal, Robt., Cammerlaws, Westruther, Gordon  
 1884 Lyal, Wm., Edington Mains, Chirnside  
 1898 M'Bain, Alexander, Implement Dealer, Coldstream  
 1886 M'Craith, H. G., Berwick-on-Tweed  
 1907 Macdonald, A. D., Lennel, Coldstream  
 1901 M'Dougal, Arthur Robert, Blythe, Lauder  
 1898 M'Dougal, George, Bassendean, Gordon  
 1898 M'Dougal, James, Bassendean, Gordon  
 1898 M'Dougal, John, Lylestone, Lauder  
 1881 Mack, Joseph, of Berrybank, Reston  
 1893 Mackay, John, Wyndhead, Lauder  
 1906 Mather, Arthur, East Mains, Milne Graden, Coldstream  
 1906 Mather, Matthew, Pritonnan, Duns  
 1906 Mather, William, West Mains, Milne Graden, Coldstream  
 1907 Menzies, Col. C. T., Kames, Greenlaw  
 1894 Michael, Reginald W., Crosbie, Earliston  
 1864 Middleton, Hilton, Kimmerghams Mains, Duns

Admitted

- 1898 Middleton, William, Cocklaw, Ayton  
 1898 Milne, Robert P., Spital Mains, Berwick-on-Tweed  
 1898 Milne, Wm., Foulden Newton, Berwick-on-Tweed  
 1903 Mitchell-Innes, A. Harold, of Whitehall, Chirnside  
 1898 Murray, James, Brockholes, Grant's House  
 1880 Nisbet, George, Rumbleton, Greenlaw  
 1900 Paterson, Archibald, Eyemouth Mill, Eyemouth  
 1901 Paterson, D. T., Sinclair's Hill, Duns  
 1906 Porteous, Andrew M., Solicitor, Coldstream  
 1880 Porteous, James, Solicitor, Coldstream  
 1908 Prentice, John, Grain Merchant, Berwick-on-Tweed  
 1898 Purdie, Adam, Cranshaws, Duns  
 1878 Reay, The Right Hon. Lord, Carolside, Earlston  
 1892 Robertson, William, Binkbonny, Earlston—*Free Life Member*  
 1899 Scott, J., Oil Mills, Berwick-on-Tweed  
 1892 Sellar, E., The Crooks, Coldstream  
 1910 Sharpe, Robert W., Park, Earlston  
 1909 Simpson, William, of Laverock Braes, Reston  
 1890 Smith, Andrew, of Whitechester, Duns  
 1880 Somervail, J. A., Broomdykes, Chirnside  
 1908 Stephenson, Thomas, Kildallohaugh, Duns  
 1898 Stokoe, Thomas, Tweed Iron Works, Berwick-on-Tweed  
 1884 Swan, Robert G., Shawbraes, Reston  
 1880 Swinton, J. L. Campbell, of Kimmerghame, Duns  
 1899 Taylor, J. P. Ross, Mungo's Walls, Duns  
 1899 Thompson, Ralph, Merchant, 4 Love Lane, Berwick-on-Tweed  
 1885 Thomson, Samuel, Buxley, Duns  
 1898 Torrance, Thomas, Hutton Hall, Barns, Hutton, Berwick  
 1894 Turnbull, George Gilon, of Abbey St Bathans, Grant's House  
 1884 Tweedie, David, Nether Howden, Lander  
 1900 Veitch, Archd., Hume Hall, Greenlaw  
 1908 Watson, G. Scott, Harelaw, Greenlaw  
 1898 Webster, John, Edrom-Newton, Edrom  
 1885 Welsh, Alex., Seedaman, Coldstream  
 1900 Wight, James, Greenwood, Grant's House  
 1889 Wilkie, James Bruce, of Foulden, Berwick  
 1898 Wilson, James H., Crumtane, Edrom  
 1900 Wilson, Philip, Corn Factor, Duns  
 1885 Wright, Hugh, Blackburn, Cockburnspath  
 1905 Wylie, Alexander, Pathhead, Cockburnspath  
 1874 Wylie, James, Pathhead, Cockburnspath

PEEBLES.

- 1902 Ainslie, John, Estate Office, Stobo  
 1898 Balfour, F. R. S., Dawyck House, Stobo  
 1905 Ballantyne, Sir Henry, jun., Provost of Peebles  
 1905 Ballantyne, Henry Norman, Caerlee, Innerleithen  
 1884 Ballantyne, Wm., Wormiston, Eddleston  
 1904 Braes, Andrew M., The Crook, Broughton  
 1906 Brownlee, R. C., Hurdieshope, Peebles

Admitted

- 1906 Brydon, Adam, Tweedbank, Innerleithen  
 1905 Cairns, Andrew, Live Stock Salesman, Peebles  
 1898 Caverhill, J. M., Manor, Peebles  
 1902 Clark, R., Gosland, Biggar  
 1898 Clarkson, Alexander, Skirling Mill, Biggar  
 1898 Clarkson, Robert, Burnetland, Broughton  
 1902 Constable, George W., Traquair Estate Office, Innerleithen  
 1890 Cunningham, Captain John, yr. of Leithenhope, Innerleithen  
 1894 Davidson, Alex., Ladyrud, Dolphinton  
 1874 Dickson, W. L., Drumelzier Haugh, Biggar  
 1905 Douglas, George, Earlypier, Eddleston  
 1884 Dyron, F. W., Chapelhill, Peebles  
 1874 ELIHANK, Right Hon. Lord, Darn Hall, Eddleston  
 1905 Ellbank, Master of, M.P., Juniper Bank, Walkerburn  
 1884 Ellis, John, Laverlaw, Peebles  
 1887 Erskine, Rear-Admiral James E., of Venlaw, Peebles  
 1882 Ferguson, Sir James R., of Spitalhaugh, Bart., West Linton  
 1908 Forrest, Allan, Whitfield, West Linton  
 1906 Gairns, Alex. C., Cloverhill, Broughton  
 1881 GIBSON-CARMICHAEL, Sir T. D., of Skirling, Bart., Murrayfield, Biggar  
 1878 Gordon, Charles, of Hallmyre, Lamancha  
 1884 Gracie, Charles A., Easter Haprew, Stobo  
 1905 HAY, Sir Duncan E., of Haystoun, Bart., Kingsmeadows, Peebles  
 1907 Inglis, Thomas, Glenternie, Peebles  
 1894 Jack, George, Netherwood, Dolphinton  
 1905 Johnston, John C., V.S., Peebles  
 1905 Laidlaw, David, Hallismyre, West Linton  
 1910 Laidlaw, James, Greenbank, West Linton  
 1905 Linton, Simon, jun., Posa, Peebles  
 1910 Lyell, Robert, jun., Hawkshaw, Tweedmuir  
 1906 Macdonald, D., Kilbuchs House, Biggar, Peeblesshire  
 1907 Mackenzie, Kenneth, of Dolphinton (19 Ainslie Place, Edinburgh)  
 1898 Marshall, H. B., of Rachan, Broughton  
 1907 Martin, William, Caberston, Walkerburn  
 1906 Martin, William, Dawyck Mill, Stobo  
 1905 Masterton, Ebenezer B., Broughton Green, Broughton  
 1885 Maxwell, James, Eddleston Bank, Eddleston  
 1905 Mitchell, Andrew D., West Loch, Eddleston  
 1905 Montgomery, Richard, Home Farm, Lamancha  
 1908 Paterson, Tom, Crookstone, Peebles  
 1905 Paterson, Wm., Crookstone, Peebles  
 1905 Paterson, Wm., Falton, Dolphinton, Peeblesshire  
 1898 Patrick, James, Malingland, Peebles  
 1907 Philipson, Eytos, of Stobo, Peeblesshire  
 1898 Purdie, James G., Hambleton, Stobo  
 1881 Ritchie, G. D., Chapelgill, Broughton  
 1905 Ritchie, Wm. C., Lyne, Peebles  
 1905 Robertson, Jas. Morton, Portmore, Eddleston  
 1905 Russell, John, South Mains, Skirling, Peeblesshire  
 1898 Russell, William, Bonnington, Peebles



## Admitted

- 1867 Smith, J. Turnbull, LL.D., Kingswood, Peebles  
 1906 Somerville, John, of Portmore, Eddleston  
 1908 Sommerville, James, Grange, Lamancha  
 1906 Sommerville, Wm., Eccles Tofts, Greenlaw  
 1906 Stewart, B., Darnhall Mains, Eddleston  
 1900 Stewart, Thomas, Glenrath, Manor  
 1880 Stodart, Thomas Tweedie, of Oliver, Broughton  
 1890 Tennant, Sir Edward P., of The Glen, Bart., Innerleithen  
 1886 Thorburn, M. G., of Glenormiston, Innerleithen  
 1889 Thorburn, William, Craigerne, Peebles  
 1905 Thorburn, Wm., Hearthstanes, Tweedsmuir  
 1906 Tudhope, B., Milkleston, Eddleston, Peebles  
 1906 Tudhope, James, Nether Falla, Eddleston  
 1898 Tudhope, J., Broughton Place, Broughton  
 1898 Tudhope, William, Milkleston, Eddleston  
 1906 Watson, Robert, Edderston, Peebles  
 1907 Weir, Thos., Robinsland, West Linton  
 1878 Williamson, Miss Katharine Isabella, of Cardrona, Peebles  
 1884 Wilson, James, West Mains, Dolphinton

## ROXBURGH.

- 1898 Anderson, Robert B., of Glenburn Hall, Jedburgh  
 1862 Arras, Walter, Beachwood, Melrose  
 1884 Ballantyne, David, Shaws, Newcastleton  
 1860 Ballingall, George, Clarilaw, St Boswells  
 1898 Balmer, William, Smallholm House, Kelso  
 1903 Barr, Samuel, jun., Nottylees, Kelso  
 1886 Beattie, John, Braidlle, Newcastleton  
 1906 Bell, David, Primside, Kelso  
 1898 Bell, John A., Ploughlands, St Boswells  
 1885 Bell, William Scott, jr. of Woll, Hawick  
 1906 Beveridge, Henry E., Kerchesters, Sprouston  
 1880 Boyd, Andrew, F.R.C.V.S., Melrose  
 1863 Boyd, W. B., of Faldonside, Melrose  
 1894 Brock, Hugh B. P., Faughhill, St Boswells  
 1898 Brotherton, Andrew, Muirdean, Kelso  
 1884 Brown, James, Copland, Anorum  
 1906 Brown, William, Kersmains, Roxburgh  
 1903 Brownlee, John, Smallholm Mains, Kelso  
 1889 Bruce, John, Easter Langlea, Galashiels  
 1906 Bruce, Robert, Sunnyside, Jedburgh  
 1866 Brunton, James, Broomlands, Kelso  
 1862 Brydon, Adam, Netherbarns, Galashiels  
 1908 Burns, William, Sunnyside, Hawick  
 1871 Caverhill, John, Jedneuk, Jedburgh  
 1906 Clark, Geo. B., Marchelslough, Kelso  
 1897 Cochrane, Wm. E. A., Roansgreen, Newcastleton  
 1909 Connochie, Robert, V.S., St Boswells  
 1893 Cree, William, Whitelee, St Boswells  
 1872 Croall, John, Coach Works, Kelso  
 1884 Cunningham, Robt., Branhholme House, Hawick  
 1906 Curle, Robt. Andrew, of Overwells, Jedburgh  
 1888† DALKREITH, The Earl of, Eldon Hall, St Boswells

## Admitted

- 1906 Davidson, Alex., jun., Whitton, Kelso  
 1898 Davidson, Andrew, Auctioneer, Melrose  
 1899 Davidson, Gilbert, Barnhills, Minto, Hawick  
 1907 Davidson, Jonah, Forest Field, Kelso  
 1898 Davidson, Mark Turnbull, Melrose  
 1898 Davidson, Richard, Swinnie, Jedburgh  
 1863 Dodd, James, Hundalee Cottage, Jedburgh  
 1908 Dodds, William, Hiltons Hill, St Boswells  
 1904 Douglas, Allan M., Spots Mains, Kelso  
 1898 Douglas, Andrew, Saughtree, Newcastleton  
 1898 Douglas, Captain Edward Palmer, of Cavers, Midgard, Hawick  
 1889 Douglas, Francis, Caverston, Roxburgh  
 1871 Douglas, George, Upper Hindhope, Jedburgh  
 1867 Douglas, George Sholto, 5 Abbotsford Grove, Kelso  
 1906 Douglas, John, Ancrum West Mains, Ancrum  
 1906 Douglas, John, Swinside Townfoot, Jedburgh  
 1906 Douglas, Thos., Rulietownhead, Hawick  
 1906 Douglas, Walter S., Hindhope, Jedburgh  
 1909 Douglas, William, Springwood Park, Kelso  
 1898 Dove, George, Whitehouse, St Boswells  
 1908 Dow, John, Lempitlaw, Kelso  
 1898 Dunn, David, Roxburgh Mains, Roxburgh  
 1876 Dunn, John, Parkside, Kelso  
 1911 Elliot, Major Edward Hay Mackenzie, of Wolfes, Hawick  
 1880 Elliot, James, of Flex, Hawick  
 1898 Elliot, John, Hindhope, Jedburgh  
 1884 Elliot, Robert, Hermifage, Newcastleton  
 1874 Elliot, Robert Henry, of Clifton Park, Kelso  
 1906 Elliot, Robt. T., Chatto, Kelso  
 1893 Elliot, Thomas, Attonburn, Kelso  
 1906 Elliot, Thomas, Kirrdean, Newcastleton  
 1898 Elliot, Thomas Robert Barnewall, jr. of Clifton Park, Kelso  
 1907 Elliot, Walter, Kirrdean, Newcastleton  
 1898 Elliot, Wm., Bulcherote, St Boswells  
 1908 Elliot, Wm. Irving, Kirrdean, Newcastleton  
 1906 Ewing, Ian Alastair, West Nisbet, Ancrum, Jedburgh  
 1884 Fairbairn, J. J., of Fens, St Boswells  
 1895 Fleming, Charles J. N., St Bede's, Melrose  
 1905 Fleming, Hugh, Longnewton, St Boswells  
 1884 Fleming, John, Roan, Newcastleton  
 1895 Fleming, William, Hallrule, Bonchester, Hawick  
 1906 Fraser, Charles, St Helena, Melrose  
 1894 Goodfellow, A., High School, Kelso—  
*Free Life Member*  
 1907 Graham, Robert Kainflat, Kelso  
 1906 Greig, Major J. L., of Eccles, Kelso  
 1884 Grierson, Robert, Whitechesters, Hawick  
 1878 Grieve, C. J., of Rashiegrain, Branhholm Park, Hawick  
 1907 Grieve, Chas. Walter, Branhholm Park, Hawick  
 1907 Grieve, Robert, Branhholme Braes, Hawick  
 1890 GRIFFITH, Sir Richard Walde, of Hendersons Park, Bart., Kelso  
 1895 Haddon, Andrew, Honeyburn, Hawick  
 1884 Hall, David, Larriston, Newcastleton  
 1908 Hamilton, Gavin, Highridge Hill, Kelso

Admitted

- 1897 Hart, Andrew D., The Flatt, Kershopefoot, Carlisle  
 1892 Hay, Athole S., of Marfield, Roxburgh  
 1880 Henderson, Robert, Mounthooly, Jedburgh  
 1901 Hogarth, James, Prior Bank, Kelso  
 1895 Hogarth, William Gray, Linton, Bankhead, Kelso  
 1909 Hutcheson, David Soot, Broomhill, Melrose  
 1895 Hutcheson, William, Courthill, Kelso  
 1907 Inglis, Wm., Kedsle, Earlston  
 1907 Irvine, Chas. Sturrock, Seedsman, Jedburgh  
 1895 Jackson, Jas. W. Hassendean, Hawick  
 1906 Johnston, James S., Kersknowe, Kelso  
 1887 Johnston, John S., Crailinghall, Jedburgh  
 1889 Johnston, Wm. Lee, Oxnam Neuk, Jedburgh  
 1890 KARR, Sir Harry Seton, St Boswells  
 1909 Kerr, H. F. Rawflat, Ancrum  
 1890 Kidd, Henry, Lowood, Melrose  
 1880 Laing, Thomas (Laing & Mather), Kelso  
 1872 Laurie, Thomas, Ormiston Terrace, Melrose  
 1884 Leadbetter, Hugh M., Knowesouth, Jedburgh  
 1872 Lyal, William, St Johns, Gattonside, Melrose  
 1888 Macfarlane, James, Penchrise, Stobs, Hawick  
 1898 M'Laren, P., Fairnington, Roxburgh  
 1906 M'Tier, J. Cameron, Menslaw, Jedburgh  
 1893 Mather, R. V. (Laing & Mather), Kelso  
 1863 Mein, Ben., Roxburgh Barns, Roxburgh  
 1892 Mein, James A. W., of Hunthill, Jedburgh  
 1898 Minto, The Earl of, K.G., Minto House, Hawick  
 1886 Moffat, James, Craick, Hawick  
 1899 Monteath, George, Newtown, St Boswells  
 1880 Muir, John, Kaestda, Melrose  
 1898 Murray, Wm. R., Charterhouse, Kelso  
 1890 Ogilvie, George, Holefield, Kelso  
 1906 Oliver, Adam, Stodrig, Kelso  
 1886 Oliver, Andrew R., Thornwood, Hawick  
 1906 Oliver, Douglas, Hassendean Bank, Hawick  
 1889 Oliver, Geo. Lindsay, 18 Wilton Hill, Hawick  
 1897 Oliver, John, Lynwood, Hawick  
 1893 Paton, E. Douglas, Brashhead, St Boswells  
 1899 Paton, Major James, of Crailing, Jedburgh  
 1899 Pearson, Thos. Smith, of Otterburn, Morebattle, Kelso  
 1898 Peter, John Stewart, Hallrule, Hawick  
 1868 Polwarth, Right Hon. Lord, Mertoun, St Boswells  
 1889 Polwarth, The Hon. the Master of, Humsie House, Upper Kelth  
 1898 Porteous, Ronald, Newtown, St Boswells  
 1909 Potter, W. B., Ashyburn, Ancrum  
 1895 Price, W. M., Minto Estates Office, Hawick  
 1884 Pringle, John, Nisbet, Ancrum  
 1898 Purdom, Finlay, Border Club, Hawick  
 1906 Purves, Wm., Kersquarter, Sprouston, Kelso  
 1898 Rae, James William, Colmsliehill, Gala-shiels  
 1872 Renwick, John, Nurseryman, Melrose

Admitted

- 1894 Ritchie, D. N., of The Holmes, St Boswells  
 1898 Robertson, James, Morebattle Tofts, Kelso  
 1898 Robertson, John, Ladyrig, Roxburgh  
 1898 Robertson, R. A., Yetholm Mains, Yetholm, Kelso  
 1904 Roberts, T. J. S., of Drygrange, Melrose  
 1906 Roger, E. J. P., Manorhill, Kelso  
 1904 Roxburgh, The Duke of, Floors Castle, Kelso  
 1901 Russell, George Alex., Glen Douglas, Jedburgh  
 1906 Rutherford, Henry, of Fairnington, Roxburgh  
 1910 Rutherford, Peter, Cliftonhill, Kelso  
 1884 Rutherford, W. E. Oliver, of Edgerston, Jedburgh  
 1883 Scott, Hon. J. O. Maxwell, of Abbotsford, Melrose  
 1898 Scott, Arthur Francis, of Howleuch Langlea, Jedburgh  
 1884 Scott, Chas., Milsington, Hawick  
 1911 Scott, Hon. C. F., Mertoun, St Boswells  
 1898 Scott, James, Softlaw, East Mains, Kelso  
 1906 Scott, James, Troneyhill, Ancrum  
 1884 Scott, John, Borthaugh, Hawick  
 1898 Scott, John, Ploughlands, Ancrum  
 1906 Scott, John, Froden, Kelso  
 1901 Scott, John Alex., Mossburnford, Jedburgh  
 1906 Scott, John M., Cessford, Kelso  
 1889 Scott, John Robson, of Newton, Jedburgh  
 1898 Scott, Robert C., Graden, Kelso  
 1890 Scott, Thos., Little Fordel, Melrose  
 1899 Scott, T. W. Robson, Lanton Towers, Jedburgh  
 1908 Scott, Walter A., Drinkstone, Hawick  
 1906 Scott, Wm. F., Spylaw, Kelso  
 1882 Scott-Makdougall, H. J. E., of Makerston, Kelso  
 1906 Shiell, Rutherford, Midsheils, Hawick  
 1899 Simson, Alexander Tudhope, Brewer, Melrose  
 1888 Sinclair, C. G., Grahamslaw, Roxburgh  
 1879 Smith, James, Maitland House, Kelso  
 1888 Smith, J. R. C., Mowhaugh, Kelso—*Free Life Member*  
 1881 Smith, E. C., Ormiston, Roxburgh  
 1887 Smith, Thomas A., Bedrule, Jedburgh  
 1906 Smith, T. D. Orlenton, Provost of Kelso  
 1907 Sprot, Lieut. J. M. F. (Royal Scots Greys), Riddell, Lilliesleaf  
 1908 Stirling, Hugh B., Darlingsfield, Kelso  
 1908 Stirling, John W., Darlingsfield, Kelso  
 1898 STRATFORD and CAMPBELL, Lord, Hart-rigg, Jedburgh  
 1906 Tait, David W. B., W.S., Edenside, Kelso  
 1893 Taylor, William, Ashybank, Hawick  
 1897 Teacher, Donald M., Gatehousecote, Hawick  
 1904 Thomson, And. F., of Cowbog, Morebattle, Kelso  
 1899 Thomson, Thomas, Hopton, Ancrum, Jedburgh  
 1897 Thomson, W. H., Over Roxburgh, Roxburgh  
 1898 Tod, Wm., Blinkbonny, Kelso  
 1899 Tully, Alex. B., V.S., Kelso  
 1888 Turnbull, J., Gorehill, Kelso  
 1899 Turnbull, James, 8 Bridge Street, Kelso  
 1889 Turnbull, Mark, Melrose  
 1906 Turnbull, Walter, Hawickmill, Hawick  
 1888 Turnbull, W. Geo., Spital, Jedburgh  
 1872 Usher, Thomas, Courthill, Hawick  
 1880 Waddell, Alex., of Palace, Jedburgh

## Admitted

- 1898 Walker, Alex., Chemist, Jedburgh  
 1898 Watson, John, Greatridge Hall, Kelso  
 1894 Watson, J. M., Bassendean House, Melrose  
 1889 Watson, T. Lindsay, Briery Yards, Hawick  
 1886 Watson, Capt. W. S., of Burnhead, Hawick  
 1898 Wilson, Chas. John, Deanfield, Hawick  
 1894 Younger, Wm., Ravenswood, Melrose

## SELKIRK.

- 1906 Barrie, Walter, Sundhope, Yarrow, Selkirk  
 1899 Burns, James (George Burns & Sons, Engineers), Galashiels  
 1889 Connochie, Thomas D., V.S., Galashiels  
 1906 Dun, And., Laidlawstiel, Galashiels  
 1900 Elliot, And. Stirling, Hollybush, Galashiels  
 1869 Elliot, A. T., Newhall, Galashiels  
 1889 Elliot, John, Meigle, Clovenfords  
 1906 Elliot, Thomas, Blackhaugh, Clovenfords  
 1906 Elliot, Walter, Newhall, Galashiels  
 1878 Grieve, James Howden, Selkirk  
 1895 Hall, Robert, Kiln Knowe, Galashiels  
 1900 Hamilton, Jas., Philiphaugh Farm, Selkirk  
 1895 Johnston, John, Chapelhope, Ettrick  
 1905 Kirk, Thomas, Ramsaycleuch, Ettrick Selkirk

## Admitted

- 1878 Laidlaw, Robert, Rodono, Selkirk  
 1878 Lang, Robert J., Broadmeadows, Selkirk  
 1878 Lindsay, John V., Whitehope, Selkirk  
 1901 Lindsay, William, South Common, Selkirk  
 1896 Linton, Andrew, Oakwood, Selkirk  
 1878 Linton, Simon, Oakwood, Selkirk  
 1909 Linton, Wm. Thomson, Gilnanscleuch, Selkirk  
 1880 Mitchell, Thomas, Howford, Selkirk  
 1884 Morton, Thomas, Torwoodlee, Galashiels  
 1889 Noble, Robert, of Borthwickbrae, Hawick  
 1897 Ovens, Wm. R., of Peel, Clovenfords  
 1885 Plummer, Chas. H. S., of Sunderland Hall, Selkirk  
 1908 Pollok, John, Broomhill, Selkirk  
 1906 Pott, Jas. Gideon, of Potburn, Ettrick, Selkirk  
 1906 Pringle, J. Lewis, of Torwoodlee, Galashiels  
 1909 Purves, John, Overwhitlaw, Selkirk  
 1906 Roberts, Alexander F., of Fairnilee, Clovenfords, Galashiels  
 1880†Scott, John, of Gala, Galashiels  
 1881 Scott, John Corse, of Synton, Hawick  
 1907 Stalker, Donald G., The Hall, Galashiels  
 1896 Steedman, John, County Clerk, Selkirk  
 1906 Steel, Samuel Straug, Philiphaugh, Selkirk  
 1898 Wilkie, John, 21 Island Street, Galashiels

NUMBER OF MEMBERS, 488.

## ENGLAND.

## Admitted

- 1890 Abram, Laurence, Sexey's School, Blackford, Wedmore, Somerset  
 1882 Aikman, Thomson, 1 East India Avenue, London, E.C.  
 1902 Alder, Thomas Bogue, New Etal Grange, Cornhill-on-Tweed  
 1855 Alexander, John, Moreton House, Cheltenham  
 1900 Allison, Herbert W., c/o Mr Short, Home Farm, Ingestre, Stafford—*Free Life Member*  
 1898 Allison, Hubert, Tickford Priory, Newport Pagnell, Bucks  
 1850 Anderson, Robert Hood, Devonshire Club, London  
 1863 Angus, John, Whitesfield, Morpeth  
 1895 Anand, John F., Armstrong College, Newcastle-on-Tyne—*Free Life Member*  
 1911 Annett, Henry, Widdrington, Acklington  
 1896 Anstruther, Arthur W., C.B., Hillside, Hook Heath, Woking  
 1897 Ashby, S. F., 110 Liverpool Road, Birkdale, Southport—*Free Life Member*  
 1873 Ashdown, A. H., Uppington, Wellington, Sulop—*Free Life Member*  
 1888 Aveling, T. L., Rochester  
 1901 Bainbridge, Thomas H., Eshott Hall, Felton, Northumberland  
 1900 Baird, Colonel M. W., Exning House, Newmarket  
 1903 Bailligall, F. L., Pelsdon Lacy Estate Office, Dorling  
 1890 Bamford, Henry, jun., Leighton Iron Works, Uttoxeter  
 1899 Barber, Robert, African Chambers, 19 Oldhall Street, Liverpool  
 1895 Barford, James G. (of Barford and Perkins), Peterboro  
 1880 Burrett, Robert Bell, Skipton Castle, Skipton  
 1896 Barron, James, Heathcote Farm, Warwick—*Free Life Member*  
 1906 Batters, Walter P., Over Hall, Colne Engaine, Earis Colne, Essex  
 1907 Beale, Mrs Amy Jane, Knockholt, Kent  
 1899 Beattie, James C., Alkton House, Wigton, Cumberland  
 1879 Bell, And., Risley, Derby  
 1898 Bell, J. P. F., Fulforth, Witton Gilbert, Durham  
 1871 Bell, William, 87 Malbourne Grove, Dulwich, London, S.E.  
 1898 Bell, William, Hatchough, Ainswick  
 1884 Benson, R. A., Duchy of Cornwall Office, Liskeard, Cornwall—*Free Life Member*  
 1910 Bentall, Edmund E. (E. H. Bentall & Co., Ltd.), Heybridge, Maldon, Essex  
 1900 Berwick, Wm., Stravins, Northwold, Norfolk  
 1900 Bickerton, Henry N. (National Gas Engine Co., Ltd.), Ashton-under-Lyne  
 1882 Biggs, Thomas, Great Dover St., London  
 1885 Birch, W. de Houghton, Houghton Estate Office, Walton Hall, Preston—*Free Life Member*

## Admitted

- 1902 Blackshaw, John F., Midland Dairy School, Kingston, Kegworth  
 1898 Blackstone, Edward Christopher (Blackstone & Co., Limited), Stamford  
 1875 Blackwood, Alex., Estate Office, Leadenham, Lincoln  
 1900 Blagg, Ernest W. H., Greenhill, Cheshire, Staffordshire  
 1910 Bland, Charles (R. J. Fulwood & Bland), 31 Bevan Street, London, N.  
 1883 Bonallo, W. C., Estate Office, Locko Park, near Derby  
 1896 Burness, Charles, Estate Agent, Ridge House, Grinkle, Yorkshire  
 1875 Brochie, G., Grinkle, Loftus, R.S.O.  
 1873 Browne, Colville, M.R.A.C., Swanley Junction, Kent—*Free Life Member*  
 1870 Bryan, F. G. D., Drumpeller, Brunswick Road, Gloucester  
 1884 Brydon, John, Seed Merchant, Darlington  
 1873 Brydon, Robert, The Dene, Seaham Harbour—*Free Life Member*  
 1875 Bullock, Matt., 48 Prince's Gate, London, S.W.  
 1896 Burdett, William, Grange Hill, Bishop Auckland—*Free Life Member*  
 1908 Burlingame, C. H. (International Harvester Co., Ltd.), 80 Finsbury Pavement, London, E.C.  
 1877 Burr, John M., 87 London Road, Chelmsford, Essex  
 1907 Burrell, Mrs. Carham Hall, Goldstream  
 1894 Burrell, Charles, Thetford, Norfolk  
 1900 Burton, John H., County Education Office, Weston-super-Mare—*Free Life Member*  
 1882 Calder, James, of Wold Newton Hall, Hunmanby, R.S.O., Yorks  
 1895 Calander, S., Pea Top Farm, Oulgaith, Carlisle  
 1878 Cameron, H. E., Springcroft, Shepherd's Hill, Highgate, London, N.  
 1868 Campbell, A. H., Cornwall Gardens, London, S.W.  
 1882 Campbell, Rear-Admiral H. J. Fletcher, C.B., Beach Lodge, Wimbledon Common  
 1894 Candler, Countess of, Naworth, Brampton, Cumberland  
 1878 Carr, Robert, Grindon, Northumberland—*Free Life Member*  
 1887 Carrington, George, M.R.A.C., Missenden Abbey, Great Missenden, Bucks—*Free Life Member*  
 1882 Carruthers, Joseph, Furnace Mill, Cowden, Eden Bridge, Kent  
 1907 Carter, George, Engineering Works, Dunstable  
 1877+Oxley, Lord Arthur, The Mount, Lymington, Hants  
 1884 Clark, J. M., Featherstone Castle, Hallowell  
 1881 Clark, W. A., 19 Onslow Sq., London, S.W.  
 1898 Clarke, Thomas, Eskmeals, Beeth, S.O., Cumberland  
 1911 Clarke, Walter (Oxpias, Ltd.), Diss, Norfolk

## Admitted

- 1899 Cole, James Thomson, Brereworde, Beer, South Devon—*Free Life Member*  
 1896 Combe, J. Scarth, Broomhill Grange, Edwinstowe, Newark  
 1910 Coombs, John W. G. (Richmond & Chandler), Roebuck Hotel, Flixton, Lancs  
 1908 Cooper, Sir George A., Bart., 26 Grosvenor Square, London  
 1906 Cooper, Sir R. F., Bart., Shenstone Court, Lichfield  
 1877 Corbett, T., Perseverance Iron Works, Shrewsbury  
 1891 Coward, T. A., c/o The Manager, London City and Midland Bank, Northallerton—*Free Life Member*  
 1890 Crabtree, Henry, Moss House, Heywood—*Free Life Member*  
 1875 Craig, H. V. Gibson, c/o W. Birch Reynardson, Ardwell House, Tetworth, Oxon  
 1882 Craig, Robert, Crondon Park, Billericay, Essex  
 1860 Crawford, Daniel, Potterells Farm, Hatfield, Herts  
 1898 Crawford, Lionel W., Kiveton Hall, Sheffield  
 1903 Creighton, T. R. (Thos. Reay), Abbey Town, Carlisle  
 1896 Crombie, Walter G., Junior Constitutional Club, Piccadilly, London, W.  
 1876 Cruickshank, J. W., Coombe Head, Haslemere, Surrey  
 1868 Cruickshank, Edward C., Shrublands, Graffham, Petworth, Sussex  
 1898 Croyer, John, 183 Cliff Wood Mount, Bradford Road, Shipley Yorks—*Free Life Member*  
 1882 Cunningham, T. D. S., 1 Rockville, Tenby, Pembrokeshire  
 1900 Curr, David, Red House, Carlisle  
 1906 Curr, James, Red House, Carlisle  
 1896 Dalue, Mrs (née Fraser), Rupert Farm, Huyton, Liverpool—*Free Life Member*  
 1894 Daine, Herbert S., The Pines, Mouldsworth, Chester—*Free Life Member*  
 1895 Dallas, James, 8 Heworth Green, York  
 1906 Davidson, William, East Learmonth, Cornhill-on-Tweed  
 1887 Davies, Edward Smith, Seedgreen Park, Stourport, Worcestershire—*Free Life Member*  
 1907 Dawkins, Chas. W. (Massey Harris Co., Limited), 54 and 55 Bunhill Row, London, E.C.  
 1901 Dawson, Robert Alexander, Tycoc, Holywell  
 1899 Dellschaft, A. H., 18 Compton Road, Canonbury, London, N.—*Free Life Member*  
 1901 Denny, William, Narborough, Norfolk  
 1872 Dewar, David, 20 Crescent East, Hadley Wood, Barnet, London  
 1886 Dickson, Thos. A., Estate Office, Overstone Park, Northampton—*Free Life Member*  
 1895 Dixon, Albert Alex., Tanwood House, Chaddesley Corbett, nr. Kidderminster, Worcestershire—*Free Life Member*  
 1887 Don, H. G., Sleights Hall, Sleights, R.S.O., Yorkshire  
 1871 Donne, Henry, The Abbey Ruins, Bury St Edmunds  
 1897 Douglas, A. Hugh, Eden House, Malton  
 1862 Dudgeon, John Scott, St Augustine, Weald, Sevenoaks, Tunbridge  
 1879 Duncan, John, Manor Farm, Middleton, King's Lynn  
 1882 Duncan, John W., Coldrey, Bentley, Farnham, Surrey

## Admitted

- 1884 Dunn, James, 29 Clavendish Place, Jesmond, Newcastle-on-Tyne  
 1871 Eden, Henley, Woodstock, Ascot, Berks  
 1894 Edmond, John, Fern Bank, Eastbourne  
 1895 Egginton, Arthur, 11 St Michael's Road, Bedford  
 1875 Ellesmere, The Right Hon. the Earl of, Worsley Hall, Manchester  
 1907 Ellis, Oswald W. (Robey & Co., Limited), Globe Works, Lincoln  
 1882 Ensor, Thos. H., 54 South Street, Dorchester—*Free Life Member*  
 1902 Eve, H. Trustrum, F.S.I., 2 St Paul's Square, Bedford  
 1887 Farquharson, Alexander, Copperfield, Clifton-on-Teme, Worcestershire  
 1898 Fergusson, James, Oakley Hall, Harwich, Essex  
 1894 Fielding, J. B., Downing, Holywell, North Wales  
 1910 Findlay, Alexander, Maresfield Park, Sussex  
 1909 Fisher, George, Farnbrook, Pilling, Garstang, Lancashire—*Free Life Member*  
 1897 Fitzherbert, W., Manor Farm, Aston Somerville, Broadway, Glos  
 1891 Fleet, Wilfrid J., Imatra, King's Road, Bournemouth—*Free Life Member*  
 1907 Fleming, David (Dickson, Brown, & Tait), 48 Corporation Street, Manchester  
 1864 Fleming, James, Henney, Barway, Ely, Cambs  
 1908 Fleming, James, Redkirk, Rigg, Carlisle  
 1901 Foden, Edwin, Elworth Works, Sandbach  
 1906 Fox-Brockbank, A. H., The Croft, Kirkstanton, Cumberland  
 1888 Galashan, Alfred, St Swin's, Barking-side, Ilford, Essex  
 1909 Garnet, Frank W., M.R.C.V.S., Dalegarth, Windermere  
 1908 Garrett, Lieut. Peter B., H.M. Coastguard, Sandgate  
 1892 Gascoigne, Major R. F. T., Letherton Hall, Aberford, Leeds  
 1879 Gibson, Major J. G., Ashley Manor, Braiding, Isle of Wight  
 1889 Gilchrist, D. A., Armstrong College, Newcastle-on-Tyne—*Free Life Member*  
 1882 Gilkes, Gilbert, Canal Iron Works, Kendal  
 1903 Gillanders, A. T., Forester, Alnwick Castle, Alnwick  
 1871 Gillespie, Alexander, Sherbourne, St Johns, Basingstoke  
 1878 Goddard, H. R., Hammet Street, Taunton, Somerset—*Free Life Member*  
 1908 Gooch, Sir Thomas V. S., Bart., Bensacre Hall, Wrentham, Suffolk  
 1898 Gordon, A. A., M.V.O., The Croft, Farningham, Kent  
 1875 Gordon, W. R. G., Barham Lodge, Sandown, Isle of Wight  
 1866 Gough, William, Land Agent, Wykeham  
 1881 Gover, L. D., Clay Point, Flushing, Falmouth—*Free Life Member*  
 1886 Gow, George, Tregothnan Office, Truro  
 1901 Gower, Cecil Leveson, Bletchingly, Surrey  
 1881 Graham, George, Moat Farm, Much Hadham, Herts  
 1878 Graham, Robert G., Beanslands Park, Irthington, *vid* Crosby-on-Eden, Carlisle  
 1888 Graham, William, Eden Grove, Kirkbythorpe, Penrith  
 1900 Grant, A. F. F., yr. of Druminnor, New University Club, St James's Street, London, S.W.

Admitted

- 1897 Gray, John, 25 Leam Terrace, E., Leamington  
 1895 Greenwood, Thomas P., M.D., B.Sc., County Asylum, Radcliffe, Nottingham—*Free Life Member*  
 1899 Grieve, Wm. O., Amersite Law, Belford, Northumberland  
 1898 Hacking, Thomas, Agricultural and Horticultural College, Uckfield, Sussex—*Free Life Member*  
 1890 Hadden, Gavin, Levant Lodge, Earls Croome, Worcester  
 1892 Haldane, Fred., 71 Ravensdowne, Berwick-on-Tweed  
 1864 Halkett, Lieut.-Col. J. C., Junior Carlton Club, London  
 1877 Hall, T. F., Billiter Buildings, Billiter Street, London, E.C.  
 1867 Hallen, Vety. Lieut.-Col., F.R.S.E., F.R.C.S.E., Pebworth Fields, Stratford-on-Avon  
 1888 Hamilton, H. W., Willey Park Estate Office, Dawley, Salop—*Free Life Member*  
 1888 Handley, John, Greenhead, Milnthorpe  
 1884 Hardy, C. W. L., Gittisham, Honiton—*Free Life Member*  
 1897 Harrison, George, The Hall, Gainford, Darlington  
 1895 Harrison, John, Chatsworth House, Carlisle  
 1875 Haughton, W. H., Highlands, Gt. Bedford, St Neots  
 1887 Haviland, W. A., Brightling Place, Brightling, Sussex  
 1908 Hayes, Charles H. (W. A. Wood, M. & R. M. Co.), 36 Worship St., London, E.C.  
 1883 Haywood, C. P., Beaumont Manor, Lincoln  
 1878 Henderson, John, Court Heath, St Albans, Herts—*Free Life Member*  
 1854 Henderson, Thos., Hastings Cottage, Seaton Delaval, Newcastle-on-Tyne  
 1861 Henderson, W., East Elington, Haydon Bridge, Carlisle—*Free Life Member*  
 1896 Hewison, Robert, Edgescote, Banbury, Oxon—*Free Life Member*  
 1899 Hewitt, Thomas G., M.R.C.V.S., 23 Dorset Street, Baker St., London, W.  
 1909 Hickes, Robert J., F.R.C.V.S., Market Weighton, Yorkshire  
 1878 Hill, A. J., St Keverne, Harrow-on-the-Hill—*Free Life Member*  
 1894 Hill, Henry F., Agricultural College, Aspatria—*Free Life Member*  
 1897 Hill, J. Smith, Principal, Agricultural College, Aspatria  
 1902 Hobbs, James T., Malpas Hampton, Fairford, Gloucestershire  
 1878 Holliday, Jonathan, Kirkbampton, Carlisle  
 1878 Holliday, William, 5 Carlton Terrace, Botcherby, Carlisle  
 1909 Hollinghurst, Henry, 127 Fenchurch Street, London, E.C.  
 1882 Holm, Alex., Lawrence's Farm, Buckland, Betchworth, Surrey  
 1886 Hooper, O. H., South-Eastern Agricultural College, Wye, Kent—*Free Life Member*  
 1878 Hope, John W., John Knight & Sons, Ltd., The Royal Primrose Soap Works, Silvertown, London, E.  
 1908 Howard, Henry Charles, Graystoke Castle, Fenrith, Bedford  
 1898 Howard, J. H., Britannia Iron Works, Bedford  
 1910 Hughes, George, 155 Fenchurch Street, London, E.C.

Admitted

- 1879 Hunt, A. E. Brooke, Merton Grange, Slough, Bucks—*Free Life Member*  
 1898 Hunter, Chas. E., Wemmergill, Middleton-in-Teesdale  
 1895 Hurley, George, County Technical Office, Stafford—*Free Life Member*  
 1907 Hussey-Freke, A. E., Collicke Moor, Coldharbour, Dorset  
 1888 Hutchinson, Alan, 80 Church Street, Durham  
 1888 Inman, A. H., care of Glyn, Mills, Currie, & Co., 67 Lombard Street, London, E.C.—*Free Life Member*  
 1895 Irving, John, Mossland, Rockliffe, Carlisle  
 1893 Irwin, Colonel T. A., Lynehow, Carlisle  
 1900 Jackson, William, 12 Hawthorne Terrace, New Earswick, Yorks  
 1899 Jefferson, J., Willaston House, Nantwich  
 1893 Jones, Prof. C. B., University College of Wales, Aberystwyth—*Free Life Member*  
 1895 Joynson, Francis, Norton Hall, Worcester  
 1876 Keith, Lieut.-Col. Jas., Capel Hall, Frimley, Ipswich  
 1890 Kennard, Cecil, Green Room Club, Leicester Square, London  
 1894 Kennaway, David, The Farm, Cramlington, Northumberland  
 1875 Kennedy, W., Lewes and County Club, Lewes—*Free Life Member*  
 1883 Kenyon, J. W., Cecily Hill, Cirencester  
 1869 Kerr, James, Ashford, Kent  
 1902 Kerr, John, Loudwater, Rickmansworth, Herts  
 1874 Kidd, H., F.R.C.V.S., Exmouth, Devon  
 1894 Laidlaw, Percy O., Stonecroft, Fourstones, R.S.O.  
 1881 Lang, Hugh, Brackley, Northamptonshire  
 1907 Lang, James, The Home Farm, Hoxne, Eynes, Suffolk  
 1864 Latta, Mathew Rodger, Redbury, Ardleigh, Essex  
 1905 Lawson, Alex. R., Forester's Cottage, Easton, Stamford  
 1878 Leggat, Alex., Mill Place Farm, East Grinstead, Sussex  
 1907 Lemarchant, H., 189 Queen Victoria Street, London, E.C.  
 1875 Lightfoot, H. Le Blanc, Corpus Christi College, Oxford  
 1901 Lindow, Mark Burns, Ingwell, Moor Row, Cumberland  
 1891 Lister, Joseph, Fern Cottage, Great Broughton, Cockerham, Cumberland—*Free Life Member*  
 1885 Lockhart, Peter, Estates Office, Corby Castle, Carlisle  
 1885 Lowndes, Most Noble the Marquis of, K.G., Seaham Hall, Seaham Harbour  
 1896 Long, Right Hon. Walter H., M.P., Rood Ashton, Trowbridge  
 1909 Longridge, Robert B., Stratfield Saye, Mortimer, R.S.O., Berks  
 1885 Lorne, Sir Massey, Bart., 23 Grosvenor Gardens, London  
 1874 Lothian, M. J., 17 Harley House, Regent's Park, London, N.W.  
 1889 Lowson, J. G. F., Snitterfield House, Stratford-on-Avon  
 1888 Lyon, George, Ingatestone, Essex  
 1878 M'Connell, P., Northwyke, Southminster, Essex—*Free Life Member*  
 1878 M'Cracken, W., Crews—*Free Life Member*  
 1895 M'Creath, James, West Cornwall Creamery, Lelant, R.S.O., Cornwall—*Free Life Member*

## Admitted

- 1891 Macdonald, Charles, *The Field Office*,  
Brearns Buildings, London, E.C.  
1908 M'DONNELL, The Hon. Sir Schomberg K.,  
K.C.B., C.V.O., 3 Buckingham Gate,  
London, S.W.  
1898 M'Dougall, James T., F.E.S., Danollie,  
Blackheath, London  
1896 Macfie, R. A., Royal Colonial Institute,  
Northumberland Avenue, London, W.C.  
1908 M'Intosh, John W., M.R.C.V.S., Gras-  
mead, 88 Underhill Road, East Dul-  
wich, London, S.E.  
1875 Mackay, Thomas, Westwood, Coventry  
1898 Mackay, William, Greenhill Farm, Kil-  
merston, Bath  
1897 Mackenzie, W. A., Estate Office, West  
Dean, Chichester  
1901 Mackenzie, William J., 64 Fleet Street,  
Torquay  
1874 M'Kerrow, A., Bradshaw House, Brad-  
shaw, Halifax, Yorks  
1911 Mackie, Hugh, Greta House, Carlisle  
1904 MacLagan, Norman, Discove House,  
Bratton, Somerset  
1880 M'Laren, John, Hunslet, Leeds  
1895 M'Lennan, Donald, Radnor Hall, Elstree,  
Herts  
1888 M'Leod, J. M., 2 Hildrop Road, Camden  
Road, London, N.  
1889 M'Master, Wm., jun., The White House,  
Wix, Manningtree  
1870 M'Monies, J., Coombelands, Addlestone,  
Surrey  
1870 M'Naughton, D., 79 Mark Lane, London,  
E.C.  
1907 M'Turk, Alec., M.R.C.V.S., Swaffham,  
Norfolk  
1909 M'William, W.S., Royal Farms, Windsor  
1884 Malcolm, John, M.R.C.V.S., Birming-  
ham—*Free Life Member*  
1911 Maltby, W. J. (Battle, Maltby, & Bower),  
Lincoln  
1880 Mangin, W. Nangreave, Preston, Chathill  
1906 Mann, James H., Pepper Road Works,  
Leeds  
1882 Mann, Robert J., Wrenbury House,  
Nantwich  
1884 Marriott, Thomas E., Newnham, Daven-  
try  
1904 Marshall, A. M'L., Chitcombe, Breda,  
Sussex  
1905 Marsden, H. R., Soho Foundry, Leeds  
1888 Marshall, James, Gainsborough  
1907 Martin, John P. (Wm. Gray & Sons),  
408 Beverley Road, Hull  
1909 Martin, William Edward, Torkington  
House, Stamford  
1894 Meiklejohn, D. W., Wyndyard Park,  
Stookton-on-Tees  
1891 Menzies, Robert, Merton, Thetford  
1891 Methven, M. W., 84 Kenilworth Court,  
Putney, London, S.W.  
1889 Middleton, T. H., Board of Agriculture,  
4 Whitehall Place, London, S.W.—  
*Free Life Member*  
1899 Miller, John, Brookfield, Great Stukeley,  
Huntingdon  
1874 Miller, John, 26 Onslow Garden, Mus-  
well Hill, London, N.  
1901 Miln, George P. (Gartons, Limited),  
Milnholme, Chester  
1900 Mirrlees, Arthur, Checquer House,  
Ranby, Retford  
1911 Mitchell, David, Hayton Castle, Bullgill,  
Cumberland  
1901 Moir, James, Goodwood, Chichester  
1861 MONTAGU of Beaulieu, Lord, Palace  
House, Beaulieu, Southampton  
1903 Montgomery, Hugh, 8 Fenwick Street,  
Liverpool

## Admitted

- 1846 Montgomery, John H., 8 Mount Street,  
London  
1878 Mounbray, J. M., Sutton Iford, Lewes,  
Sussex  
1880 Moulst, John, Royal Buildings, New-  
castle-on-Tyne  
1877 Mounsey, Wm. R. Lowther, 20 King  
Street, Penrith  
1882 Muir, John G., 2 Grosvenor Crescent,  
London, S.W.  
1888 Murdoch, James, Cardington, Bedford  
1879 Nairne, T. G., Hythe, Southampton  
1896 Ness, John, c/o R. Errington, Victoria  
Mills, Sunderland  
1899 Newton, Thos., The Bent, Warburton,  
Warrington—*Free Life Member*  
1900 Nicholson, Edward Henry, Col. 4th  
Notts V.B. Sherwood Foresters, New-  
ark-on-Trent  
1898 Nicholson, W. L., Anick Grange, Hexham  
1882 Nickels, John Tetley, The Day House,  
Shrewsbury  
1900 Nicol, Arthur P., Gryllmor, Penmaen-  
mawr  
1898 Nisbet, Robt., Lower Haddon, Bamp-  
ton, Oxon  
1901 Nixon, W., Tregothnan, Truro, Cornwall  
1892 Noel, Ernest, Hingham Hall, Attleboro',  
Norfolk  
1879 North, G. F., Strathfieldsaye, Mortimer,  
R.S.O., Berks  
1858 Ogilvie, Wm. R., West Ward Cottage,  
Thursby, Carlisle  
1872 Oliphant, L. J., Turf Club, Piccadilly,  
London, W.  
1887 Orde, Colin R. Campbell, Ravendale,  
Godalming, Surrey  
1906 Owen, Philip, Newmarket House, Gos-  
forth, Newcastle-on-Tyne  
1903 Page, Herbert, Hertford  
1894 Parkin-Moore, Wm., Whitehall, Meals-  
gate, Carlisle  
1857 Paton, A. Monclova, College Road, Nor-  
wood, London  
1909 Patten, John, jun., Hulne Park, Alnwick  
—*Free Life Member*  
1910 Peacock, Hugh, Greatford Hall, Stam-  
ford  
1906 Peacock, John T., Lownewport Farm,  
Silksworth, Sunderland  
1897 Peet, John O., B.Sc., Ashbournes  
House, Spring Hill, Lincoln—*Free  
Life Member*  
1888 Perkins, W. F., M.R.A.C., Boldre Bridge  
House, nr. Lymington—*Free Life  
Member*  
1905 Peter, James, Berkeley Castle Estate  
Office, Berkeley  
1905 Peter, James A., Brown's Mill Farm,  
Berkeley  
1900 Petter, Ernest Willoughby, Elshore,  
Yeovil, Somerset  
1889 Pilkington, Claude M., Wollaton, Not-  
tingham  
1884 Pitcairn, D. D., 20 Tremaine Road,  
Anerley, London, S.E.  
1885 Pollock, Tho., Manor House, Nettlebed,  
Henley-on-Thames  
1905 Porter, John, B.Sc., Shirehall, Hereford  
1893 Powell, J. E., Cambrian Iron Works,  
Wrexham  
1907 Prior, C. L., Grimblethorpe Hall, Lin-  
coln  
1897 Profitt, George W., B.Sc. (Edin.), and  
of Lincoln's Inn, Barrister-at-Law,  
Estate Office, Charborough Park,  
Wareham, Dorset  
1888 Quibell, W. O., Highfield House, Newark  
1901 Rabagliati, Duncan S., 1 St Paul's Road,  
Bradford—*Free Life Member*

## Admitted

- 1870 Ralston, A. R., c/o Robert Clark, Esq., Manor House, Patrick Brompton, Bedale, Yorkshire
- 1891 Ramsay, Hon. Chas. Maule, Carlton Club, Pall Mall, London, W.
- 1892 Rand, John, Westnewton, Kirknewton, Ayrwick
- 1886 Rennie, D. W., West Hayes, Winchester
- 1907 Ransome, Bertram C., Orwell Works, Ipswich
- 1907 Ransome, Edward G., Orwell Works, Ipswich
- 1870 Rawline, John D., 44 Clarence Road, Birkdale, Southport
- 1906 Remington, J. Stewart, Aynsme, Grange-over-Mands, Lancs
- 1882 Renne, James, Bowesfield Farm, Stockton-on-Tees
- 1905 Rice, Henry E. H., Dane Court, Dover
- 1878 Richardson, R. A., 128 Shiel Road, Newsham Park, Liverpool
- 1874 Richardson, George W., Landour, The Shrubbery, Weston-super-Mare
- 1905 Rickerby, Joseph, 87 Botchergate, Carlisle
- 1880 Riddle, Andrew, Yeavinger, Wooler
- 1899 Ridley, Matthew A., Hawkhope, Falsstone, Northumberland
- 1852 Rimoul, Chas., Strawberry Hall, Buxted, Sussex
- 1886 Robertson, Charles T. A., Burningsfold, Dunsfold, Godalming—*Free Life Member*, 1888
- 1900 Robinson, J. F., 17 Victoria Street, Westminster, London
- 1878 Robinson, Thos., Cargo, Carlisle
- 1884 Robson, Jacob, Byrness, Otterburn
- 1873 Rome, Thos., Raymead, Goring-on-Thames—*Free Life Member*
- 1903 Rootham, Fred. F., Banacre Estate Office, Pynes Hall, Wrentham, Suffolk
- 1870 Ross, J., The Grove, Ravensglass, Carnforth
- 1910 Ross, Walter A., 119 Finsbury Pavement, London, E.C.
- 1892 Rosslyn, Earl of, Carlton Club, London, S.W.
- 1900 Rushton, John C., County Education Office, Stafford—*Free Life Member*
- 1882 Russel, Jas., Hildstad Place, Sevenoaks
- 1871 Russell, James M., Strawberry Hall, Buxted, Sussex
- 1897 Sailerthwaite, Ben. H., Castle Park, Lancaster
- 1871 Salmoud, D. S., 58 Coleraine Road, Blackheath, London, S.E.
- 1908 Saunders, Charles, 80 Fern Avenue, Newcastle-on-Tyne
- 1908 Scholes, Walter, National Gas Engine Co., Ltd., Ashton-under-Lyne
- 1888 Scott, Adam, Great Ryle, Whittingham, Northumberland
- 1889 Scott, Alex., Whinfall Park, Penrith
- 1898 Scott, Robert, Wyndham Hotel, Bootle, Liverpool
- 1872 Selby, B. F., Pawston, Mindrum, Northumberland
- 1890 Sessions, Harold, Lawn Lodge, Dawlish—*Free Life Member*
- 1894 Seton, Robert S., The Yorkshire College, Leeds—*Free Life Member*
- 1898 Shaw, Philip A., Hemmington Hall, Derby
- 1882 Shirlaw, James, 14 North Lodge Terrace, Darlington
- 1898 Shuttleworth, Alfred (Clayton & Shuttleworth), Lincoln
- 1908 Simpson, Chas. (Newthorn & Co., Ltd.), Waltham Lodge, Broxbourne, Herts
- 1906 Simpson, J. Rhys, 14 Birch Road, Bebington, Cheshire

## Admitted

- 1896 Sinclair, Jas., Editor *Live Stock Journal*, 8 Bream's Buildings, Chancery Lane, London, E.C.
- 1873 SINCLAIR, The Right Hon. Lord, 55 Onslow Square, London, S.W.
- 1886 Slater, And., Redhouse, Durrington, Salisbury
- 1896 Smith, David Idster, Blorley Lane, Dudley Hill, Bradford, Yorks—*Free Life Member*
- 1900 Smith, Fred., 115 Brook Street, Macclesfield—*Free Life Member*
- 1904 Smith, George G. (British Oil and Cake Mills, Ltd.), Cleveland Street, Hull
- 1872 Smith, Jas. F., Victoria House, Wooler, Northumberland
- 1873 Smith, Wm. Borthwick, C.E., M.R.A.C., "Goodrest," Emsworth, Hants—*Free Life Member*
- 1892 Solomon, F. O., Dauntsey's Agricultural School, West Lavington, Devizes, Wilts—*Free Life Member*
- 1881 Somerville, William, M.A., D.Sc., D.Oc., 121 Baulbury Road, Oxford—*Free Life Member*, 1887
- 1887 Stanhope, John Montague Spencer, Cannon Hall, Barnsley, Yorkshire
- 1885 Steel, Alexander, Southend, Essex
- 1898 Steel, John, Hampton Barns, Rochford, Essex
- 1884 Stephen, H. C., Avenue House, Finchley, London
- 1880 Stephenson, C., V.S., Sandysford Villa, Newcastle
- 1855 Stuart, Robert, White House, North Shoebury, Essex
- 1908 Stewart, James G., M.A., B.Sc., Principal, The Laboratories, Chelmsford
- 1908 Stewart, J. King, Secretary, The Fertilisers Manufacturers Association, 79 Mark Lane, London, E.C.
- 1868 Stewart, Neil P., Plas Lodwig, Bangor, North Wales
- 1902 Stewart, Ronald, The Caledonian Club, 30 Charles Street, St James's, London, S.W.
- 1877 Stirling, A., 80 Eccleston Street, London, E.W.
- 1893 Stirling, John, Gosford Grange, Shifnal, Shrops
- 1903 Stockley, Wm. T., Rose Villa, Garwood, near Wigan—*Free Life Member*
- 1893 Stockman, Stewart, M.R.C.V.S., Board of Agriculture, 4 Whitehall Place, London, S.W.
- 1884 Stordy, Norman, Thurstonfield Tannery, Carlisle
- 1905 Strawnon, George F., 79A Queen Victoria Street, London, E.C.
- 1898 Sutton, Alfred, Bridekirk, Cockermouth
- 1906 Sutton, Arthur Warwick, Seed Merchant, Reading
- 1906 Sutton, Martin John, Seed Merchant, Reading
- 1855 Swanwick, R., R.A.C. Farm, Cirencester
- 1909 Tamlin, William, Talbot House, Teddington, Middlesex
- 1894 Taylor, James W., 79 Brook Road, Bootle, Liverpool
- 1898 Taylor, William, The Moorfields, Edgar Street, Hereford
- 1910 Thomas, William (Day & Sons), Edleston House, Crews
- 1891 Thomson, Duncan, Grand Courts, Bayne, Essex
- 1898 Thompson, Henry, V.S., Lapatria
- 1899 Thorley, Joe, Wood Hall, Shenley, Herts (of Joseph Thorley, Ltd., London)
- 1894 Thorne, Charles J. B., & Evesham Wood, The Green, Reading—*Free Life Member*



## Admitted

- 1897 Tod, James A., Thirlsey Farm, Hackness, Scalby, R.S.O.  
 1899 Todd, William, Belmont, 45 Higher Ardwick, Manchester  
 1899 Topplin, John C., Musgrave Hall, Skelton, Fenrith  
 1896 Townshend, Joseph H., Felloungley, nr. Coventry—*Free Life Member*  
 1889 Turner, Thos. Warner, Welbeck, Worksop, Notts  
 1908 Unite, Sydney George, 291 Edgeware Road, London, W.  
 1877 VANE, Sir H. R., of Hutton in the Forest, Bart., Fenrith  
 1905 Veltch, James, Dewe's Farm, Haselfield, Uxbridge, Middlesex  
 1897 Wakerley, Frederick, The Midland Agricultural and Dairy Institute, Kingston-on-Soar, Derby—*Free Life Member*  
 1900 Wale, Bernard N., South-Eastern Agricultural College, Wye, Kent—*Free Life Member*  
 1896 Walker, Frank P., Armstrong College, Newcastle-on-Tyne  
 1889 Walker, Thomas G., Symonds Hyde, Hatfield, Herts  
 1873 Wall, Geo. Y., Durham—*Free Life Member*  
 1882 Wallace, George, 9 Wood's Villas, Sovereley Junction, Kent  
 1882 Wallace, R. Hedger, Glamorgan County Council Education Office, Westgate Street, Cardiff  
 1899 Wallace, William, 5 Broadlands Road, Highgate, London, N.  
 1902 Wallace, William B., Cuddington Court, Cheam, Surrey  
 1898 Walters, J. Tudor, M.P. (Mills & Co.), Granville Road, Leicester  
 1873 Walton, G. K., Long Compton, Shipston-on-Stour—*Free Life Member*  
 1894 Ward, Martin H., New Farm, Horton Asylum, Epsom, Essex—*Free Life Member*  
 1907 Ward, Thomas, Pinchinthorpe, Great Ayton  
 1888 Wardman, Robert, Warwick Bank House, Carlisle  
 1896 Waters, Arthur, Coopersale, Epping, Essex  
 1890 Waters, J. C. Dun, Plaish Hall, Church Stretton, Salop  
 1896 Waterson, D. M., Lupton, Churston, S. Devon  
 1910 Watson, George, Lowfield House, Wigton, Cumberland  
 1886 Watt, James (Little & Ballantyne), Knowsfield, Carlisle  
 1881 Weber, F. H., Hawthornden, Mumbles, Swansea—*Free Life Member*

## Admitted

- 1897 Webster, Herbert, 1 Granby Terrace, Harrogate  
 1894 WEDDERBURN, Sir W., of Ballendean, Bart., Meredith, Gloucester  
 1860 Welsh, Jn., Westwood, Southfleet, Gravesend  
 1891 White, W. E. C., Chatwood, Wokefield Green, Mortimer, Berks.—*Free Life Member*  
 1894 Whittaker, John D., Oxford and Cambridge Club, Pall Mall, London, S.W.—*Free Life Member*  
 1899 Whyte, John D. B., Elveden Hall, Suffolk  
 1900 Wigram, Oswald L., Nord Vue, Armathwaite, Cumberland  
 1907 Will, Harry M., M.A., B.Sc., Manager, Potash Syndicate, 117 Victoria Street, Westminster, London, S.W.  
 1898 Williams, David D., University College of Wales, Aberystwyth—*Free Life Member*  
 1854 Willis, T., Manor House, Carparby, Bedale  
 1903 Wilson, Fenwick, Marden, Whitley Bay, Northumberland  
 1899 Wilson, John, Edenhall, Langwathby, R.S.O., Cumberland  
 1900 Wilson, Robert, 80 Cambridge Street, Newcastle-on-Tyne  
 1896 Wilson, R. Riddall, 17 Queen Victoria Street, London, E.C.  
 1892 Wilson, William, Goodyhills, Maryport—*Free Life Member*  
 1858 Wilson, William, Borough, Sanderstead, Croydon, Surrey  
 1896 Wilton, James F., 16 Beresford Road, Wallasey, Cheshire—*Free Life Member*  
 1901 Wood, Chas., Horringer Cottage, Horringer, Bury St Edmunds, Suffolk  
 1876 Wordsworth, R. W., Whitmoor House, Ollerton, Notts  
 1906 Wright, A. T., North Ancroft, Beal, Northumberland  
 1898 Wylie, Thos., Ashwell, near Baldock, Herts  
 1895 Wyllie, David, Timsbury, Romsey, Hants  
 1896 Young, David, Westover Farm, Clatford, Andover, Hants  
 1905 Young, James Arthur, 161 Victoria St., Westminster, London  
 1879 Young, R. W., Billeswell Manor, Litterworth  
 1878 Young, Wm., Harvey's Farm, Braintree, Essex  
 1876 Young, W. S., The Close Farm, Embleton, Baas Lake, Cockerham  
 1905 Yuill, Andrew, Wyvenhoe, Redlands Road, Reading  
 1877 ZETLAND, Marquis of, K.T., Aske, Richmond, Yorkshire

NUMBER OF MEMBERS, 448.

## IRELAND.

- 1907 Adams, J. M., Agricultural Station, Clonakilty, Co. Cork  
 1893 Ballingall, Robert Rennie, Adare, Limerick  
 1910 Barton, Henry Dupre Malkin, The Bush, Antrim  
 1882 Beresford, J. G. M., St Huberts, Belurbet, Ireland  
 1904 Bland, Hum, Blandsfort, Abbey Leix, Ireland  
 1868 Bruce, Robert, Royal Dublin Society, Dublin  
 1878 Campbell, Geo., Dollardstown House, Athy, Co. Kildare—*Free Life Member*

- 1892 Campbell, J. R., Department of Agriculture, Dublin—*Free Life Member*  
 1892 Duncan, James L., 49 St Laurence Road, Clontarf, Dublin—*Free Life Member*  
 1877 Fennessy, Thos., Grange Villa, Waterford  
 1891 Forbes, A. C., Avondale Forestry Station, Rathdrum, Co. Wicklow  
 1876 Gilchrist, And., Grovedale, Golden Ball, Co. Dublin  
 1884 Goulding, Sir W. J., "Millicent," Sallins, Co. Kildare  
 1899 Hinchelliff, Joseph H., Department of Agriculture, Upper Merion Street, Dublin—*Free Life Member*

## Admitted

- 1905 Lane, B. H., Rush Hall, Limavady, Londonderry  
 1876 Maconchy, J. A., Kildare Street Club, Dublin—*Free Life Member*  
 1892 Mettam, A. E., Veterinary College of Ireland, Dublin  
 1908 Mortensen, Franz, 105 Middle Abbey Street, Dublin  
 1900 Pimlott, James, Department of Agriculture, &c., 4 Upper Merrion Street, Dublin—*Free Life Member*  
 1906 Raffan, Jas., Fota Farm, Carrigtwohill, Co. Cork

## Admitted

- 1896 Robertson, Andrew R., Department of Agriculture, Upper Merrion Street, Dublin—*Free Life Member*  
 1902 Simpson, David S., Department of Agriculture, Westport, Co. Mayo  
 1900 Strachan, James, Land-Steward, Annegrove, Carrigtwohill, Co. Cork  
 1898 Wade, Thomas, Courthouse, Naas, Co. Kildare—*Free Life Member*  
 1892 Wilson, James, jun., Royal College of Science, Dublin—*Free Life Member*  
 1900 Wood, James, Craiglea, Temple Gardens, Rathmines, Dublin—*Free Life Member*

## THE COLONIES.

- 1882 Ainslie, John, Ainslie's Ranch, Prince Albert, Saskatchewan, Canada  
 1904 Allan, Wm., M.A., B.Sc., Principal, Agricultural College, Elsenberg, Cape Colony  
 1898 Anderson, George H., 529 Spence Street, Winnipeg  
 1908 Angus, Wm., B.Sc., Department of Agriculture, Adelaide, South Australia  
 1887 Banerjee, N. N., Calcutta—*Free Life Member*  
 1888 Basu, G. C., 196 Bowbazar St., Calcutta—*Free Life Member*  
 1876 Bean, William, Rosebank, Winnipeg, Manitoba  
 1881 Blyth, A. H., Frankfield, Manitoba  
 1851 Bogle, John, Auckland, New Zealand  
 1899 Brown, Ernest C., 468 Young Street, Winnipeg, Canada—*Free Life Member*  
 1876 Brown, J. H., Walros, Napier, New Zealand  
 1864 Brydon, James, Pleasant Point, Timaru, New Zealand  
 1864 Brydon, Herbert, Gladstone, Manitoba, Canada  
 1879 Brydons, W. S., Freeland's, Palmerston South, New Zealand  
 1874 Burn, Forbes, Coldstream, Hinds, Canterbury, New Zealand—*Free Life Member*  
 1879 Cantile, Charles A., Natal  
 1901 Carlyle-Bell, A., The British Colony, Battleford, Canada  
 1909 Carruthers, Thos. R. D., Agricultural College, Elsenberg, Cape Colony  
 1902 Chirnside, George Thomas, Warrilbee Park, Melbourne, Australia  
 1868 Coker, The Hon. R., Chapelton, Jamaica  
 1872 Currie, James J., Blinkbonny, Birtle, Manitoba  
 1894 De la Mothe, Joseph T., Grand Bacolet Estate, St David's, Grenada, West Indies—*Free Life Member*  
 1888 Driehberg, Christopher, Principal, Agricultural College, Colombo, Ceylon—*Free Life Member*  
 1894 Duff, J. K. Mackenzie, South Africa  
 1894 Duncan, D. J. Russell, Corporation Offices, Fort Arthur, Ontario, Canada  
 1898 Dunn, Wm., Tobacco Creek, Miami, Manitoba, Canada  
 1901 Edgar, John Ingram, District Veterinary Surgeon, c/o Resident Magistrate, Pietersburg, Transvaal, S.A.  
 1895 Forrest, James, Honolulu Plantation Co., Aloa, Oahu, H.T.  
 1904 Fowle, Patrick, N.D.A., N.D.D., Alledale, P.O., Edmonds, Transvaal  
 1870 Gordon, R. W., British Columbia (c/o John Gibson, Howford, Peebles)  
 1897 Guthrie, Captain P. H., Comox, Vancouver Island, B.C., Canada—*Free Life Member*

- 1898 Gwilliam, Robert, Duval, Saskn., Canada—*Free Life Member*  
 1874 Hamilton, W. C., Lumsden Regina, Assa., Canada  
 1909 Harper, Charles, Chairman of the West Australian Producers' Co-operative Union, Ltd., Perth, West Australia  
 1864 Harris, Richard H., Woodside, Papaitoi, Auckland, New Zealand  
 1900 Hatfield, J. M., 7 & 9 Bridge Street, Sydney, Australia—*Free Life Member*  
 1897 Holm, Alex., jun., Experimental Farm, Potchefstroom, Transvaal  
 1898 Husband, Thomas R., Woodville, Wellington, N.Z.  
 1902 Jack, J. Noble, Gloria Estate, near Villersdorp, Caledon, South Africa  
 1911 Khan, A. D., F.R.H.S., Editor, *The Arboriculturist and Di. Forester*, Fazilka, Dt. Ferozepore, Punjab, India  
 1898 Knight, John, Mayfield Park, Birkenhead, Auckland, New Zealand  
 1875 Leithhead, James, Takapan, Hawke's Bay, New Zealand—*Free Life Member*  
 1898 Little, Jas., jun., Post Office, Olive, Hawke's Bay, New Zealand  
 1900 Lloyd-Williams, W. R., Department of Agriculture, H.M. Customs Building, Wellington, New Zealand—*Free Life Member*  
 1885 Lowrie, William, Prof. of Agriculture, Roseworthy, South Australia—*Free Life Member*  
 1883 Macdonald, A. C., Director of Agriculture, Nairobi, British East Africa—*Free Life Member*  
 1908 Macdonald, J. Ranald, of Sanda, Athenaeum Club, Johannesburg, S. Africa  
 1891 M'Dougal, Jas., Bonnyrigg, St Andrews, New Zealand  
 1871 M'Dougall, J. W., Peninsular Cottage, Asherley Junction P. O., Ontario, Canada  
 1895 M'Farlane, Robert, Minburn Post Office, Alberta, Canada  
 1897 Mason, William G., Manager, Lobatse Farms, Lobatse, Bechuanaland Protectorate, South Africa—*Free Life Member*  
 1878 Miller, Colin W., Luffness, Mirani, old Mackay, Queensland  
 1888 Mollison, James, Deputy Director of Agriculture, Poona, Bombay, India  
 1886 Moos, N. A. F., Director, Government Observatory, Bombay—*Free Life Member*  
 1878 Mundell, Walter, Touristfield, Brandon, Manitoba  
 1888 Mylner, Major J. M., Somerses Ranch, Somerses, A. and N. Reg., Victoria, B.C., Canada

## Admitted

- 1898 Nobbs, Eric A. (Ph.D., Giessen), Department of Agriculture, Cape Town—*Free Life Member*
- 1877 Paterson, John, Cowichan Station, Vancouver Island, British Columbia
- 1899 Potts, Professor George, Grey University College, Bloemfontein, South Africa—*Free Life Member*
- 1875 Pringle, A. T., Oaklea, Plumpton, *vid* Rooty Hill, N.S.W., Australia
- 1877 Pudney, Robert L., 18 Wallace Street, Herne Bay, Auckland—*Free Life Member*
- 1898 Rackham, Stanley, Lloydminster, Sask., N.W.T., Canada—*Free Life Member*
- 1871 Richmond, Thos., The Blue House, Schutz, Ramleh, Egypt
- 1874 Robertson, William, Okawa, Napier, H.B., New Zealand
- 1859 Robertson, W. M., King Street, Chatham, New Brunswick, Canada
- 1909 Rutherford, Dr J. G., Live-Stock Commissioner of Canada, Canadian Buildings, Ottawa, Ontario, Canada
- 1899 Sampson, Hugh C., Trichinopoly, S. India—*Free Life Member*

## Admitted

- 1875 Scobie, N. F. Feorlig, Fort-Macleod, N.W.T., Canada
- 1880 Scott, Charles, South Africa, *c/o* John Scott, 30 Ludgate, Alloa
- 1892 Scheult, Louis C., Santa Rosa, Arima, Trinidad—*Free Life Member*
- 1890 Shaw, Alex., Plume Rancho, Woolchester, Alberta, Canada
- 1883 Shepherd, John, Desbarats, Algoma, Canada
- 1898 Sinn, James, Districts Forest Officer, King William's Town, South Africa—*Free Life Member*
- 1895 Smith, A. Rae, Farm Manager, Lovedale, Cape Colony
- 1907 Smith, Wm., jun., Dairy Expert, Quarter-master-General's Department, Simla, India
- 1900 Watt, James W., Sinaluta, Sask., Canada
- 1890 Watt, John A., Sinaluta, Sask., Canada
- 1890 White, Alexander, Wonderboom, Pretoria, South Africa
- 1879 Wilson, John, jun., Gilbrea, Oakville, Co. Halton, Ontario—*Free Life Member*
- 1858 Wotherspoon, Archibald, West Oxford, Canterbury, New Zealand

## FOREIGN COUNTRIES.

- 1880 Aalvik, E. A., Ostenso, Hardanger, Norway
- 1882 Alexander, A. S., Evanston, Illinois, U.S.A.—*Free Life Member*
- 1876 Anderson, B. Lang, Manager, The Aboukir Company, Limited, Ramleh, Egypt—*Free Life Member*
- 1881 Auld, R. C., Bishop Crescent, Chicago, U.S.A.
- 1868 Baird, Arthur E., Brussels
- 1878 Bramwell, John, River Plate Trust Loan and Agency Co., Avenida de Mayo, Buenos Ayres—*Free Life Member*
- 1871 Bruce, George C., Staunton, Virginia, U.S.A.
- 1875 Cramer, Donald, Estancia San Alonzo, Estaciones Batio, F.C. Ensenada, Buenos Ayres
- 1880 Dundas, T. G., 39 North State Street, Chicago
- 1876 Fleming, D. G., Hacienda de San' Isidro, Villa Coronada, Jiminez, Chihuahua, Mexico
- 1890 Fraser, George M., Estancia "La Solimira," Gualeguaychú, Entre Rios, Argentine
- 1898 Fraser, Samuel, Genesee, Livingston County, New York—*Free Life Member*

- 1855 French, J., Sortikjær, Kvissel, Denmark
- 1871 Heggie, Henry, Roseburg, Douglas Co., Oregon, U.S.
- 1909 Holmberg, Algot, Norrköping, Sweden
- 1909 Krolopp, Prof. Alfred John, Attache au Ministère de l'Agriculture, Budapest, Hungary
- 1896 Lawson, George, Cabana Azencenaga, Olivos, Buenos Aires, F.C.C.A.
- 1876 Logan, J. W., M.I. Mech.E., Representative, P.O. Box 2037, Marshall's Buildings, Johannesburg, S.A.
- 1878 McKay, David, Fort-Wayne, Indiana
- 1879 Mackenzie, Murdo, Trinidad, Colorado, U.S.A.
- 1878 Nonnen, J. E., Norway—*Free Life Member*
- 1868 Shiels, George, Monett, Mo., U.S.A.
- 1897 Sproat, Hugh, Thurman, *vid* Mountain Home, Elmore Co., Idaho, U.S.A.—*Free Life Member*
- 1887 Steele, Daniel, Lake Copais Company, Ltd., 28 Homer Street, Athens, Greece—*Free Life Member*
- 1869 Tweeddale, George W., Ivy Hill, Warminster, Nelson County, Virginia, U.S.
- 1895 Vulgner, Raymond, 40 Rue de Lille, Paris

## MEMBERS WHOSE RESIDENCES ARE UNKNOWN.

[Members knowing the present Address of the following Gentlemen, or being aware of their Death, will please communicate with the Secretary, 8 George IV. Bridge, Edinburgh.]

Admitted  
1883 Allan, Gavin, late 54 Old Dumbarton Road, Glasgow  
1892 Allan, Henry, late Ballochmyle, Mauchline  
1899 Allison, Alex., late Kirkton of Cults, Ladybank  
1893 Amos, John, late Alderston, Haddington  
1889 Anderson, T. Scott, late Ettrick Shaws, Selkirk  
1881 Anderson, W. M., late Belmont, Dalkeith  
1900 Arnott, P. B., late 10 Murrayfield Road, Edinburgh  
1899 Ash, P. C., late Alderstone, West Calder  
1899 Baillie, Alex., late East Mains of Ingleton, Ratho Station  
1901 Bain, A. T. N., late 4 Falcon Square, Inverness  
1880 Balfour, J. H., late 7 Glencairn Crescent, Edinburgh  
1900 Ballantyne, Thos., late Kilmartin Hotel, Kilmartin  
1883 Bardgett, John, late 22 Broughton St., Edinburgh—*Free Life Member*  
1903 Beavan, Jim, late Eglinton Kennels  
1876 Beedie, James, late The Mains, Fraserburgh  
1895 Bell, Robt., M.D., late Glenae, Dumfries  
1882 Bertram, A. D., late Kersewell, Carnwath  
1888 Bertram, Hugh, late Edinburgh  
1902 Blackhall, T. H., late Elsieck House, Stonehaven  
1888 Boden, W. F., late Kinsteary Lodge, Nairn  
1880 Broad, Anthony, late Edinvald Road, Kelso  
1876 Brown, John, late of Colton, Dunfermline  
1907 Brown, Walter, late Jedville, Corstorphine  
1881 Buchanan, Angus, late Kilvarie, Connel  
1901 Burr, J. M., late Oaklands Estate Office, St Albans  
1882 Burton, Dr M. B., late Orwell, Lindley, Huddersfield  
1891 Cairns, T. M., late Scotsman Buildings, Edinburgh  
1882 Cameron, Donald, late Mossfield, Oban  
1891 Cameron, John, late Culresch Mains, Nethy Bridge  
1891 Campbell, Alex. E., late Duilletter, Dalmally  
1895 Campbell, Henry A., late 97 Eaton Square, London  
1904 Campbell, Wm. Jas., late Dalmeny Park  
1904 Canoh, T. R., late 45 East Trinity Road, Edinburgh  
1880 Chaplin, Captain T. R., late Lawhead House, Carnwath  
1881 Chirnside, John, late 48 Albany Street, Edinburgh  
1904 Clark, Arch., late Sancher, Colloace, Perth

Admitted  
1893 Clark, John G., late Mossburnford, Jedburgh  
1873 Clark, Wm., late 2 Victoria Embankment, Darlington  
1884 Clinton, H. E. Pellham, late Bath  
1898 Corry, R. P., late Ardveich, Lochearnhead  
1903 Cox, Charles T., late Invery, Banchory  
1890 Craig, James, late The Banks, Newdigate, Surrey  
1907 Cronks, John T., late Wester Breich, West Calder  
1874 Cruickshank, George, late 243 Warsaw Avenue, Chicago  
1878 Curror, P. R., late Burdie House, Loanhead  
1886 Darling, D. C., late 2 Rosefield Avenue, Aberdeen  
1894 Davidson, D. J. Russell, late 29 Victoria Street, London  
1908 de Free, Cecil, late 20 Regent Terrace, Edinburgh  
1896 Dick, William, late Evelick, Errol  
1895 Dobbie, Amilius, late Trench, Troubridge, Kent  
1894 Dott, Robt., late Muir Farm, Pathhead, Kirkcaldy  
1883 Dowall, J. P., late Kelly Bleachfield, Arbroath  
1878 Drysdale, David, late Bower Farm, Langley, Newport, Essex  
1898 Duke, Guy, late Brahead, Kilmarnock  
1894 Dunbar, A. Duff, V.S., late 20 Salisbury Terrace, Aberdeen  
1882 Duncan, Robert, late Berwick Farm, Stamford River, Essex  
1873 Elliot, Prof. Thomas J., late The Peebles, Globe Lands, Hunstanton, Norfolk—*Free Life Member*  
1882 Eason, Robert, late Zenda Cottage, Ashstead, Surrey  
1900 Fairbairn, John Walker, late Heads and Middle Quarter, Northam-on-Tweed  
1884 Fairweather, John, late Chapeltown, Brechin  
1886 Farish, Jas., late 463 Mile End Road, London, E.  
1897 Findlay, John W., late Bank Street, Airdrie  
1867 Fleming, David, late Avonmill, Hamilton  
1898 Forrest, T. L., late Bankhead, Ayr  
1884 Fortescue, William I., late Swazbister, Kirkwall  
1888 Fowler, John, late 2 Grantly Gardens, Glasgow  
1903 Fraser, George, late Kilnhill, Laurencekirk  
1893 Gall, Wm. E., late Stirling  
1893 Gilbert, Francis, late Northam, Corse, Ocell, Lumphman  
1896 Gieochrist, William, late Leuchars Elgin  
1871 Gillespie, Alex., late Balmeadowide, Collieston  
1899 Gillespie, William, late Athelstaneford, Devon.

## Admitted

- 1894 Glen, William, late 82 Berkeley Terrace, Glasgow  
 1887 Goodwin, John, late Clydevlew, Motherwell  
 1885 Gordon, Jas. G., late Elmwood, Inverness  
 1905 Gourlay, Chas. G., late The Croft, Longforgan  
 1890 Gourlay, Henry, late Balingry House, Dundee  
 1899 Gowans, Major J., late Kirkton House, Hawick  
 1890 Graham, Alastair B., late of Leckie, Gargunnoch  
 1891 Greenbank, Jonathan C., late Camla House, Monaghan  
 1870 Greig, James A., late 26 Howard Place, Edinburgh  
 1892 Griffen, Hugh R., late 1 Finsbury Square, London  
 1898 Gwilliam, Robert, late Agricultural College, Aspatria  
 1881 Hamilton, James A., late 11 Hayburn Street, Partick  
 1900 Hamilton, James T., late 177 Bellfield Street, Glasgow  
 1899 Harrison, William S., late Agricultural College, Aspatria—*Free Life Member*  
 1906 Heggie, Robert, late Calderwood Estate Office, East Kilbride  
 1909 Hogg, James, late Brae Leny, Caithness  
 1905 Hosack, J. A. Campbell, late Balchraggan, Alness  
 1899 Hutcheson, Wm., late Burghlee, Loanhead  
 1892 Inglis, A., late Ross-on-Wye, Herefordshire—*Free Life Member*  
 1905 Irving, R. J., late Balmacneil, Ballinluig—*Free Life Member*  
 1895 Jamieson, Robt., late Broughton House, Herne Hill, London  
 1893 Johnston, George, late Mosesfield, Springburn, Glasgow  
 1894 Johnston, John, late Prioryhill, Peterculter  
 1898 Johnston, Wm., late Allanhill, St Andrews  
 1899 Jones, A. W., late Wester Gallet, Dunfermline  
 1873 Jukes, R. F., late Harley, Much Wenlock—*Free Life Member*  
 1893 Kennedy, Daniel, late Kelso  
 1891 Kirwan, Major W. F. Maitland, late of Gelestone, Castle-Douglas  
 1889 Laidlaw, Thomas R., late Chrishall Grange, Royston, Herts  
 1897 Leighton, John, late of Balglassie, Brechin  
 1884 Lindsay, James (late Wester Happprew, Stobo), Australia  
 1874 Lothian, M. J., late Redwood, Spylaw Road, Edinburgh  
 1890 Lynam, Robert J., late Powis, Montrose  
 1882 M'Ar, Alex., late Gilmerton, Orisk  
 1888 Macdonald, Donald, late c/o J. W. Macdonald, Glasgow  
 1871 Macdonald, William, late "The Atholl," Pitlochry  
 1893 M'Dougall, John, jun., late Benglass, Ardhu  
 1893 Macfie, J. W., late of Dreghorn, Colinton  
 1887 M'Jannet, F. G., late of Gateslack, Thornhill  
 1901 Mackenzie, Major A. F., late of Ord, Muir of Ord  
 1883 Mackenzie, Colin Lyon, late St Martins, Braclangwell, Invergordon  
 1888 Mackenzie, late 60 Hamilton Place, Aberdeen

## Admitted

- 1896 Mackinlay, James, late Balnahanait, Glenlyon, Aberfeldy  
 1899 Mackintosh, James, late Estate Office, Clova, Lumsden  
 1890 Mackintosh, John, late Froncy, Dornoch  
 1901 M'Laren, Hugh, late Blackhill Villa, Aberfeldy  
 1871 M'Laren, James, late 64 Marchmont St., London  
 1907 Macleod, J. Torquill M., late Ardentrive, Kerrara  
 1886 M'Min, Thos. M'O., late 76 Hill Street, Glasgow  
 1896 Marjoribanks, Hon. Coutts, late Wester Kinloch, Blairgowrie  
 1906 Martin, Hugh A., late Mellerstain, Kelso  
 1886 Maxwell, Wellwood, late of The Forest, New Galloway  
 1901 Menzies, James, late Conon, Conon Bridge  
 1885 Menzies, John G., late 6 Grosvenor Crescent, Edinburgh  
 1899 Middleton, John, late 42 George Street, Edinburgh  
 1887 Miller, Robt. H., late of Blair Castle, Culross  
 1877 Millican, John, late Holly Bush, Kirkhampton  
 1894 Milne, And. C., late Grange, Inverkeilor  
 1893 Milne, John, late Annfield, Cardenden  
 1894 Mitchell, James S., late St John's Well, Fyvie  
 1876 Mitchell, John, late 6 Clarendon Square, Leamington, Spa  
 1885 Moir, Robert, late Tarty, Ellon  
 1894 Morton, John G., late Wormiston, Craill  
 1888 Muir, James, late Rubers Law, West-byfleet, Surrey—*Free Life Member*  
 1886 Mukerji, N. G., late Bhowanipur, Calcutta—*Free Life Member*  
 1886 Munro, J. C., late Manchester Lodge, Atherstone, England  
 1881 Murray, Captain A. B., late 61 Nevern Square, London  
 1884 Murray, W. J., late Belbroughton, Stourbridge  
 1874 Ogilvy, John F., late 18 Collingham Gardens, London  
 1897 Pattison, Walter, late Wallhouse, Bathgate  
 1882 Pollock, John, late Pollockshaws  
 1892 Pottinger, Sinclair, late Gremista, Lerwick  
 1881 Powrie, Archibald, late Lairwell, Perth  
 1880 Primerose, A. G., late Dundee  
 1889 Raeburn, Norman, late 49 Manor Place, Edinburgh—*Free Life Member*  
 1856 Rawdin, Joseph, late Chemist, Jedburgh  
 1906 Read, T. Curwen, late Hyde Farm, Stroud, Glou.  
 1897 Rennie, Wm., late Petterden, Tealing, Dundee  
 1898 Richmond, Robert, late c/o George Richmond, Ayr  
 1898 Roberts, Harry L., late Chapel-on-Leader, Marlston  
 1900 Robertson, Alex., jun., late Lethendry, Cromdale  
 1864 Robertson, D. G., late Homewood, 8 West Terrace, Eastbourne  
 1908 Robertson, William Brown, late Colburn, Longmorn  
 1886 Russell, A., 12 Wester Coates Avenue, Edinburgh  
 1889 Russell, Thos., late Kellie Farm, Wemyss Bay  
 1881 Sandison, Mark, late Hempriggs, Wick—*Free Life Member*  
 1899 Salomous, P. A., late Reidstone, Drongan

**Admitted**

- 1886 Scott, Alex., late 66 Netherby Road,  
Leith  
1898 Scott, Chas. C., late Breconside, Moffat  
1866 Scott, D. G., late Maisondieu, Brechin  
1889 Scott, Hon. Henry J., late Killhoroe,  
Wigton, Cumberland  
1889 Scott, Jas., late Inveralmond House,  
Perth  
1879 Sime, Alex., late Bay View Cottage,  
Drumeldry, Largo  
1906 Sime, John, late 40 Princes Street, Edin-  
burgh  
1898 Smith, Arch., late Morham Mains, Had-  
dington  
1885 Smith, Arthur, late Oakbank Cottage,  
Kingsgate, Aberdeen  
1882 Somervell, Jas., late of Sorn, Mauchline  
1905 Stalker, P., late Auchadunan, Inveraray  
1869 Statler, T., late Stand Hall, Manchester  
1898 Stewart, James Robt. Hunter, late 29 St  
Andrew Square, Edinburgh  
1902 Stewart, Jas. G., late Aldivalloch, Huntly  
1887 Stirling, James, late Tamano, Braco  
1906 Storrar, Richard, late Upper Urquhart,  
Gateside, Fife  
1885 Syme, David F., O.A., late 81 St Andrew  
Square, Edinburgh  
1894 Tait, John, late Papdale, Kirkwall  
1895 Thomas, Gwyn R., late West Hamp-  
stead, London  
1894 Thomson, Malcolm B., late Crosslee  
House, Houston, Johnstone  
1884 Todd, John, late Tinwald Shaws, Dum-  
fries

**Admitted**

- 1889 Tress, George Russell, late Whitelee, St  
Boswells  
1894 Tress, Wm. Maxwell, late Faughill, St  
Boswells  
1906 Tullock, A., late Brow of the Hill,  
Berwick-on-Tweed  
1878 Tweedie, A. G., late 50 Blacket Place,  
Edinburgh  
1888 Vincent, E. H., late Lander Barns,  
Lauder  
1907 Wallace, Alex., W.S., late 1 North  
Charlotte Street, Edinburgh  
1893 Wallace, J. W., W.S., late 11 Claremont  
Park, Leith  
1888 Wallace, John, late 273 Argyle Street,  
Glasgow  
1884 Watson, W. H., late Ruthven, Cold-  
stream  
1894 Watt, Geo., late Corralhill, Fraserburgh  
1878 White, James, late Stagehill, Stow  
1896 Will, Alex., late Clepington, Dundee  
1884 Williamson, Alex., late Chesterhall,  
Wiston, Biggar  
1888 Wilson, John, late Erskine, Bishopton  
1889 Winton, Alex., late Viewhill, Ardersier  
1908 Wise, James, late 20 Melville Street,  
Edinburgh  
1884 Wood, James, late 17 Pitt Street, Portio-  
bello  
1881 Woodroffe, D., late Chase View, Rugeley  
1897 Wylie, Alex., late Cravens, Wemington,  
Lancs  
1898 Young, David, late Hutton Park, Largo  
1878 Young, George, late Lochlea, Kinross

**TOTAL NUMBER OF MEMBERS, 6648.**

## DIPLOMA HOLDERS, FREE LIFE MEMBERS.

Those marked with an \* are also holders of the First-Class Certificate in Forestry.

By a By-law passed in 1878, with reference to the Supplementary Charter of 1856, successful Candidates for the Society's Agricultural Diploma became eligible to be elected Free Life Members of the Society.

This arrangement terminated in 1900, when the Highland and Agricultural Society of Scotland and the Royal Agricultural Society of England discontinued the independent Examinations in Agriculture held by the two Societies, and instituted in their stead a Joint-Examination for a National Diploma in Agriculture (N.D.A.)

## Admitted

1899 Abram, Laurence, Sexey's School, Blackford, Wedmore, Somerset

1879\* Aitken, John M., Norwood, Lockersbie

1882 Alexander, A. S., Evanston, Illinois, U.S.A.

1898 Allan, Robert, Polkemmet, Whitburn

1900 Allison, Herbert W., c/o Mr Short, Home Farm, Ingestre, Stafford

1876 Anderson, R. Lang, Manager, The Aboukir Co. Limited, Ramleh, Egypt

1897 Ashby, S. F., 110 Liverpool Road, Birkdale, Southport

1878 Ashdown, A. H., M.R.A.C., Uppington, Wellington, Salop

1887 Banerjee, N. N., Calcutta

1893\* Bardgett, John, late 22 Broughton St., Edinburgh

1896 Barron, James, Heathcote Farm, Warwick

1888 Basu, Giris Chandra, 196 Bowbazar St., Calcutta

1884 Benson, R. A., Duchy of Cornwall Office, Liskeard, Cornwall

1885 Birch, Walter de Hoghton, Hoghton Estate Office, Walton Hall, Preston

1898 Borland, John Kennedy, c/o C. Visser, Vendutie Kop, P.O. Box 27, Jagersfontein, Orange River Colony

1878 Bramwell, John, River Plate Trust Loan and Agency Co., Avenida de Mayo 645, Buenos Ayres

1890 Brown, Ernest C., 208 Good Street, Winnipeg, Canada

1891 Brown, John, 21 York Place, Perth

1878 Browne, Colville, M.R.A.C., Swanley Junction, Kent

1900 Bruce, William, B.Sc., East of Scotland College of Agriculture, Edinburgh

1878 Brydon, Robert, The Dene, Seaham Harbour

1896 Burditt, William, Grange Hill, Bishop Auckland

1874 Burn, Forbes, Coldstream, Hinds, Canterbury, New Zealand

1900 Burton, John H., County Education Office, Weston-super-Mare

1882 Buttar, Thos. A., Corston, Coupar-Angus

1873 Campbell, George, Dollardstown House, Athy, Co. Kildare

1892 Campbell, J. R., Department of Agriculture, Dublin

1885 Campbell, Robert J., Cuil, Castle-Douglas

1879 Cannon, James, Urloch, Castle-Douglas

1873 Carr, Robert, Grindon, Norham, Northumberland

## Admitted

1887 Carrington, George, M.R.A.C., Missenden Abbey, Great Missenden, Bucks

1884 Clinton, H. E., Pelham, 1 Lion Place, Borthwick Hill, Bath

1890 Cole, James Thomson, Brereworde, Boer, South Devon

1891 Coward, T. A., Northallerton

1890 Crabtree, Henry, Moss House, Heywood

1879 Craig, John, Innergeldie, Comrie

1880 Craig, William, Corriemuckloch, Anulree

1898 Cryer, John, 182 Cliff Wood Mount, Bradford Road, Shipley, Yorks

1896 Daine, Mrs (née Fraser) Rupert Farm, Huyton, Liverpool

1894 Daine, Herbert S., 11 Dalton Road, Liscard, Cheshire

1887 Davies, Edward Smith, Seedgreen Park, Stourport, Worcestershire

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# INDEX

- Accounts—see Finance.
- Advertising General Meetings, Proceedings in regard to, 361, 369.
- Agricultural Co-operation, the Pros and Cons of, by William E. Bear, 123.
- Agricultural Education, Proceedings in regard to, 366, 370.
- Agricultural Research, Proceedings in regard to, 363.
- Agricultural Statistics, 264.
- Analyses for Members during 1910, by James Hendrick, 216.
- Argyll Naval Fund, Abstract of Accounts, 350—Proceedings in regard to, 308.
- Bacon-Curing, the Progress of, by Loudon M. Douglas, 112.
- Barley, Price of, for 1910, 278.
- Beans, Price of, for 1910, 282.
- Bear, William E., The Pros and Cons of Agricultural Co-operation, 123.
- Bee-Keeping, Modern, by D. M. Macdonald, 39.
- Botanical Department, Report to General Meeting, 366.
- British Export Trade in Live Stock, Proceedings in regard to, 356.
- Byres, Cow, Ventilation of; Influence of Temperature on Milk Yield, by Charles Douglas, 170.
- Cavers, A. S., appointed Second Clerk, 361.
- Cereal and other Crops, and the Weather in Scotland in 1910, 238.
- Chemical Department, Appendix A, 31.
- Chemistry of the Proteins, by T. B. Wood, 84.
- Clydesdale and other Heavy Breeds of Horses, Origin of, by J. Cosser Ewart, 151.
- Cookie Park, Grass and Clover Seeds at, by Professor Gihlstrist, 162.
- Committees for 1910-1911, Appendix A, 7.
- Cost of Winter Feeding in Milk Production, by Principal Dunstan, 141.
- Cottages and Gardens: Premiums awarded in 1910, Premiums offered in 1911, Appendix A, 53.
- Cow Byres, Ventilation of; Influence of Temperature on Milk Yield, by Charles Douglas, 170.
- Cows' Milk, Variation in the Composition of, with Advance of Lactation, by Charles Crowther, 93.
- Cran, John, Death of, 353.
- Crops of Scotland for 1910, and the Weather in Scotland in 1910, 238.
- Crossing Turnips, Experiments in, by John H. Wilson, 18.
- Crowther, Charles: Variation in the Composition of Cows' Milk with Advance of Lactation, 93.
- Dairy Department, Appendix A, 27.
- Deficient Samples of Manures and Feeding Stuffs, Proceedings in regard to, 361, 368.
- Development Fund, Proceedings in regard to, 363.
- Development of Forestry in Scotland, by Sir John Stirling Maxwell, 182.
- Directors for 1910-1911, Appendix A, 5.
- District Competitions, Premiums awarded in 1910, 348—Report to General Meeting, 369—Premiums offered in 1911, Appendix A, 43.
- Douglas, Charles: Influence of Temperature on Milk Yield; Ventilation of Cow Byres, 170—Milk Records, 216.
- Douglas, Loudon M.: The Progress of Bacon-Curing, 112.
- Dumfries Agricultural Society, applying for a grant of Medals, 356.
- Dumfries Show, 1910, Report on, 238—Premiums awarded at, 309—Judges, 341—Abstract of Accounts, 343—Proceedings in regard to, 353, 355, 356, 357, 358, 359, 364, 369—General Meeting in Showyard, 367.
- Dunghoon, Root Feeding and the, by James Hendrick, 33.
- Dunstan, Principal: Cost of Winter Feeding in Milk Production 141.

- Edinburgh Corn-Market Grain Tables, 277.
- Entomological Department, Appendix A, 89.
- Essays and Reports, Premiums offered in 1911, Appendix A, 40.
- Ewart, J. Cossar : Origin of the Clydesdale and other Heavy Breeds of Horses, 151.
- Examinations, Dates of, Appendix A, 11.
- Experiments in Crossing Turnips, by John H. Wilson, 18.
- Feeding, Cost of Winter, in Milk Production, by Principal Dunstan, 141.
- Feeding, Heavy Root, and the Dungheap, by James Hendrick, 82.
- Finance : Accounts for 1909-1910, 345—Abstract of the Accounts of the Dumfries Show, 1910, 348—Abstract of the Accounts of the Argyll Naval Fund, 350—Rearrangement of Staff, 357—Report to General Meeting, 368.
- Forestry Chair, Grant to, 370.
- Forestry Department : Report to General Meeting, 370—Syllabus, Appendix A, 20.
- Forestry, Development of, in Scotland, by Sir John Stirling Maxwell, 132.
- Forestry Examination, Proceedings in regard to, 357.
- Gilchrist, Professor : Grass and Clover Seeds at Cockle Park, 102.
- Grain, Prices of, for 1910, 277.
- Grass and Clover Seeds at Cockle Park, by Professor Gilchrist, 102.
- Harvest Weather Forecasts, 357.
- Heavy Root Feeding and the Dungheap, by James Hendrick, 82.
- Hendrick, James : Heavy Root Feeding and the Dungheap, 82—Improvement of Hill Pasture as determined by the effect on Stock, 190—Analyses for Members during 1910, 216.
- Highland and Agricultural Society : Proceedings, 353—Constitution, Appendix A, 3—Privileges of Members, Appendix A, 4—Establishment, Appendix A, 5—Meetings, Appendix A, 10—List of Members, Appendix B, 1.
- Hill Pasture, Improvement of, as determined by the effect on Stock, by James Hendrick, 190.
- Horses, the Clydesdale and other Heavy Breeds of, Origin of, by J. Cossar Ewart, 151.
- Improvement of Hill Pasture as determined by the effect on Stock, by James Hendrick, 190.
- Influence of Temperature on Milk Yield ; Ventilation of Cow Byres, by Charles Douglas, 170.
- Inverness Show, 1911, Proceedings in regard to, 359, 360, 361, 363, 369—Premium List, Appendix A, 57.
- King Edward Seventh, by James Macdonald, 1—Addresses of Condolence on his death, 356, 364.
- Long, H. C. : Weeds and their Destruction, 45.
- M'Alpine, Professor : Report to General Meeting, 366.
- Macdonald, D. M. : Modern Bee-Keeping, 89.
- Macdonald, James, Secretary to the Society : King Edward Seventh, 1.
- Macdonald, J. Huntly, elected a Director, 354.
- Macintyre, P. B., elected a Director, 368.
- Maxwell, Sir John Stirling, Bart. : Development of Forestry in Scotland, 132.
- Members, Analyses for, during 1910, by James Hendrick, 216.
- Members, List of, Appendix B, 1.
- Members' Pavilion, proceedings in regard to, 355, 362.
- Middleton, Jonathan, Death of, 358.
- Milk Production, cost of Winter Feeding in, by Principal Dunstan, 141.
- Milk Records, by Charles Douglas, 222—Proceedings in regard to, 360, 361.
- Milk, Variation in the Composition of Cows' with Advance of Lactation, by Charles Crowther, 93.
- Milk Yield, Influence of Temperature on ; Ventilation of Cow Byres, by Charles Douglas, 170.
- Modern Bee-Keeping, by D. M. Macdonald, 39.
- National Horse Supply, Proceedings in regard to, 360.
- Nomination of Directors, Proceedings in regard to, 354, 355, 365.
- Oats, Prices of, for 1910, 280.
- Office-Bearers, Election of, 364.
- Origin of the Clydesdale and other Heavy Breeds of Horses, by J. Cossar Ewart, 151.
- Pasture, Improvement of Hill, as determined by the effect on Stock, by James Hendrick, 190.
- Ploughing Competitions in 1909-1910, Medals awarded, 343—Regulations for, Appendix A, 52.
- Plummer, C. H. Scott, re-elected Chairman of Directors, 358.
- Potato Diggers, Proceedings in regard to Trial of, 362.
- Premiums awarded in 1910, 309—Offered in 1911, Appendix A, 1.
- Prices of Grain for 1910, 277.
- Prices of Sheep, 284.
- Prices of Wool, 284.
- Proceedings at Board and General Meetings, 353.
- Pros and Cons of Agricultural Co-operation, by William E. Bear, 123.

- Proteins, the Chemistry of the, by T. B. Wood, 84.
- Publications, Proceedings in regard to, 370.
- Rainfall Records for 1910, 263.
- Retiring Allowances to Staff, Proceedings in regard to, 355, 360.
- Root Feeding, Heavy, and the Dungheap, by James Hendrick, 32.
- Science Department: Proceedings, 363, 366, 369.
- Scotland, Crops of, and the Weather in, in 1910, 233.
- Scotland, Development of Forestry in, by Sir John Stirling Maxwell, 132.
- Seeds, Grass and Clover, at Cockle Park, by Professor Gilchrist, 102.
- Sheep, Prices of, 284.
- Sheep - Dipping Order, Proceedings in regard to, 353, 354.
- Shetland Pony Classes, Proceedings in regard to, 356.
- Show of 1912, Proceedings in regard to, 355, 357, 359, 361, 362, 365, 369.
- Show of 1913, Proceedings in regard to, 356, 362, 363, 369.
- Staff, Retiring Allowances to, Proceedings in regard to, 355, 360.
- Statistics, Agricultural, 264.
- Stirling Show, 1909, Alterations in Prize List, 344.
- Stock, Improvement of Hill Pasture as determined by the effect on, by James Hendrick, 190.
- Studs in Traction Engines, Proceedings in regard to, 353.
- Swine Fever, Proceedings in regard to, 355.
- Turnips, Experiments in Crossing, by John H. Wilson, 18.
- Variation in the Composition of Cows' Milk with Advance of Lactation, by Charles Crowther, 98.
- Ventilation of Cow Byres; Influence of Temperature on Milk Yield, by Charles Douglas, 170.
- Veterinary Department: Medals awarded, 342; Appendix A, 20.
- Veterinary Inspection of Stallions, Proceedings in regard to, 354, 362.
- Wait, Andrew: The Weather of Scotland in 1910, 252.
- Weather of Scotland in 1910, by Andrew Watt, 252.
- Woods and their Destruction, by H. C. Long, 45.
- Wheat, Prices of, for 1910, 277.
- Wilson, John H., Experiments in Crossing Turnips, 18.
- Winter Feeding, Cost of, in Milk Production, by Principal Dunstan, 141.
- Wood, T. B.: The Chemistry of the Proteins, 84.
- Wool, Prices of, 286.



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